Test Report issued under the responsibility of:

TÜVRheinland®

TEST REPORT
IEC 62368-1
Audio/video, information and communication technology equipment
Part 1: Safety requirements

Report Number ..... :	**28118771 001**
Date of issue ..... :	30/11/2020
Total number of pages ..... :	80
Applicant's name ..... :	Aesys S.p.A.
Address ..... :	Via Pastrengo, 7/C I-24068 Seriate (BG) - Italy
Test specification:	
Standard ..... :	IEC 62368-1:2014 (Second Edition)
Test procedure ..... :	TÜV Scheme
Non-standard test method ..... :	N/A
Test Report Form No. ..... :	IEC62368_1B
Test Report Form(s) Originator ..... :	UL(US)
Master TRF ..... :	2014-03

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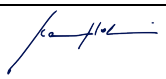
Test Item description ..... :	Display used for information system	
Trade Mark ..... :	aesys	
Manufacturer ..... :	Aesys S.p.A	
Model/Type reference ..... :	**Basic model:** Compact TFT 32" Outdoor code: 993201900100 **Derived model** (also see page 7) **:** • D_CPTOU3210-LS-P1L3ARIE-H- - 4G1-TTSPFA-Z0 code: 993201931301 • D_CPTOU3210-LS-P1L3ARIE-H- - 4G1-TTSPFA-Z1 code: 993201931302	
Ratings ..... :	220-240V 50/60Hz 1,6A 50Hz IP55	
Testing procedure and testing location:		
☒ Testing Laboratory:	**TÜV RHEINLAND ITALIA S.r.l.**	
Testing location/ address .....:	Via Mattei, 3 – 20010 Pogliano Milanese (MI) - Italy	
☐ Associated Laboratory:		
Testing location/ address .....:		
Tested by (name + signature) .....:	Gianluigi Verga (Tester)	
Approved by (name + signature).....:	Giovanni Molteni (Reviewer)	
☐ Testing procedure: TMP/CTF Stage 1		
Testing location/ address ..... :		
Tested by (name + signature) .....:		
Approved by (name + signature).....:		
☐ Testing procedure: WMT/CTF Stage 2		
Testing location/ address .....:		
Tested by (name + signature) .....:		
Witnessed by (name + signature).....:		
Approved by (name + signature).....:		
☐ Testing procedure: SMT/CTF Stage 3 or 4		
Testing location/ address .....:		
Tested by (name + signature) .....:		
Approved by (name + signature).....:		
Supervised by (name + signature) .....:		

List of Attachments (including a total number of pages in each attachment):

Attachment I: EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES 11 pages
Attachment II: PHOTO DOCUMENTATION 11 pages

Summary of testing:

Tests performed (name of test and test clause):
All relevant tests

The phase of sampling / collection of equipment under test is carried out by the customer.(Sampling performed by applicant)

Where not reported and when applicable, the calculation of the measurement uncertainty is available on request

Equipment used for testing is recorded and saved into the company archive as instruments 28118771_001_INS.
It will be made available on request.

Testing location:
TÜV Rheinland Italia S.r.l.
Via Enrico Mattei, 3
20010 Pogliano Milanese (MI) Italy

Summary of compliance with National Differences:
List of countries addressed

EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES

☒ **The product fulfils the requirements of**

EN 62368-1:2014+A11:2017

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

Here following is attached the label referred to the tested model.

Basic model :

Derived model :

TEST ITEM PARTICULARS:	
Classification of use by ..... :	☒ Ordinary person ☐ Instructed person ☒ Skilled person (for installation) ☒ Children likely to be present
Supply Connection ..... :	☒ AC Mains ☐ DC Mains ☐ External Circuit - not Mains connected - ☐ ES1 ☐ ES2 ☒ ES3
Supply % Tolerance ..... :	☒ +10%/-10% ☐ +20%/-15% ☐ +____%/ -_____% ☐ None
Supply Connection – Type ..... :	☒ pluggable equipment type A - ☐ non-detachable supply cord ☒ appliance coupler ☐ direct plug-in ☐ mating connector ☐ pluggable equipment type B - ☐ non-detachable supply cord ☐ appliance coupler ☐ permanent connection ☐ mating connector ☐ other:_____
Considered current rating of protective device as part of building or equipment installation ..... :	___16___ A; Installation location: ☒ building; ☐ equipment
Equipment mobility ..... :	☐ movable ☐ hand-held ☐ transportable ☒ stationary ☐ for building-in ☐ direct plug-in ☐ rack-mounting ☒ wall-mounted
Over voltage category (OVC) ..... :	☐ OVC I ☒ OVC II ☐ OVC III ☐ OVC IV ☐ other:
Class of equipment ..... :	☒ Class I ☐ Class II ☐ Class III
Access location ..... :	☐ restricted access location ☒ N/A
Pollution degree (PD) ..... :	☐ PD 1 ☒ PD 2 ☐ PD 3
Manufacturer's specified maxium operating ambient :	50°C (declared by manufacturer)
IP protection class ..... :	☐ IPX0 ☒ IP55, see separate report 28118771_002 issue by TÜV Rheinland Italia S.r.l.
Power Systems ..... :	☐ TN ☒ TT ☐ IT - ____ V_{L-L}
Altitude during operation (m) ..... :	☒ 2000 m or less ☐ _____ m
Altitude of test laboratory (m) ..... :	☐ 2000 m or less ☒ _160 m
Mass of equipment (kg) ..... :	☒ 41 kg
POSSIBLE TEST CASE VERDICTS:	
- test case does not apply to the test object..... :	N/A

- test object does meet the requirement ..... :	P (Pass)
- test object does not meet the requirement ..... :	F (Fail)
TESTING:	
Date of receipt of test item..... :	30/09/2019 storage 190883 – 07/07/2020 storage 200462/1 - sampling performed by manufacturer.
Date (s) of performance of tests..... :	21 to 31/10/2019; 02/10/2020

GENERAL REMARKS:

AC/DC Power Supply is separately certified.
SELV circuits is connected to earthed protective circuit.

To be installed only by skilled person

Networks not subject to overvoltage from telecommunication network. Not subject to transient over voltages due to atmospheric discharges and faults in power distribution systems. (CEI CLC/TR 62102:2006-12)

"(See Enclosure #)" refers to additional information appended to the report.
"(See appended table)" refers to a table appended to the report.

Throughout this report a ☒ comma / ☐ point is used as the decimal separator.

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies) ..... :	Aesys S.p.A. Via Pastrengo, 7/C I-24068 Seriate (BG) – Italy • Unità produttiva n.ro 1: V. Pastrengo 7/C – 24068 SERIATE (BG) - ITALIA • Unità produttiva n.ro 2: V. Ca' Bertoncina – 24068 SERIATE (BG) - ITALIA • Unità produttiva n.ro 3: V. Artigiani, 41 – 24060 BRUSAPORTO (BG) - ITALIA • Unità produttiva n.ro 4: V. San Domenico – 24060 BRUSAPORTO (BG) - ITALIA

GENERAL PRODUCT INFORMATION:

Product Description_

This display can be part, with any other panels similar or of different types, of a system aimed at informing users in transit on rail vehicles of information to travelers on the railway lines, or general information.

Basic model: 993201900100:

Mechanical			
Size:	TFT 32"		
Dimensions:	836 (L) x 530 (H) x 160 (D) mm		
Estimated Weight	45Kg		
Finish Front :	Aluminum, RAL Range, 50% GLOSS, not reflecting MAT, powder coating		
Finish Rear :	Aluminum, RAL Range, 50% GLOSS, not reflecting MAT, powder coating		
Protection grade:	IP55		
Front protection:	Antireflective (both side) Laminated Tempered glass with UV and IR protection (compliance to IK08 5J according to the EN62262)		
Lock system:	Hinged door, polyurethane bi-component vulcanized gasket; Special anti-vandal locks		
Interfaces:	1x Power Supply 1x RJ45 Data Line 1x M6 Additional ground interface 3x SMA connector (for Wireless 2G/3G/4G version, RF antenna & Wi.fi) 1x Audio Output (for further details see the attached mechanical drawing)		
Fixing points:	Monitor : Vesa standard 200x200mm, 4xM8 Female closed holes (for further details see the attached mechanical drawing)	Monitor : Vesa standard 400x400mm, 4xM8 Female closed holes (for further details see the attached mechanical drawing)	Monitor : Vesa standard 400x400mm, 4xM8 Female closed holes (for further details see the attached mechanical drawing)
Other:	Mechanical housing compliant to IK10 20J according to the EN62262		

Electrical	
Size	TFT 32"
Input power supply voltage:	Nominal 220-240V AC
	Range: 198V AC ÷ 264V AC
Input power supply frequency range:	50/60Hz
Protections:	Overload, overvoltage, over temperature
Power Consumption:	Typ.: 130W (@Brightness 70%)
	Max.: 165W (@ Brightness 100%)
	Max.: 325W (@ Brightness 100%, Heating ON)

Environmental	
Operating temperature:	-25° ÷ 50° C when installed with Suncover / Sunshade
Thermal management:	At high temperature: - Automatic TFT-LCD matrix brightness linear derating down to maximum 50% with the increase of the environmental temperature - TFT-LCD matrix and PC switched OFF when the highest temperature limit is reached
	At low temperature: - display is switched off when the lowest temperature limit is reached
Operating humidity:	10 % ÷ 95 % R.H. without condensation
Storage temperature:	-20° ÷ 60° Celsius – Ambient temperature 10% ÷ 95% - R.H. at this conditions: - till +40°C @90% R.H. - till +50°C @60% R.H. - till +60°C @40% R.H.
Cooling system:	Direct air exchange with the outside by special filter
Heating system:	Installed
Temperature Sensor	Installed
Light Sensor	Installed
Acceleration Sensor	*Upon request*

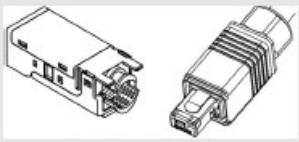
Data Communication	
Type of communication:	Copper LAN Ethernet 10/100/1000 Base TX
Protocol type:	Different protocol types supported (according to the software player hosted), SNMP protocol for diagnostic data
Other:	*Upon request:* *- Built-in LAN Ethernet 10/100/1000Base TX to 10/100/1000Base FX Media converter (multimode)* *- Wireless 2G/3G/4G* *- Wi-fi* *(for further details refer to the commercial offer)*
Connectors	
Power supply:	1x Harting PushPull Power 2/0, panel feed-through and connector, 3-poles (2+PE)
Data line:	1x Harting PushPull RJ45 Technology, RJ45-panel jack feed-through
Audio output:	1x Cable Gland
Antenna:	3x SMA Connector
Ground interface:	1x M6 male ground point

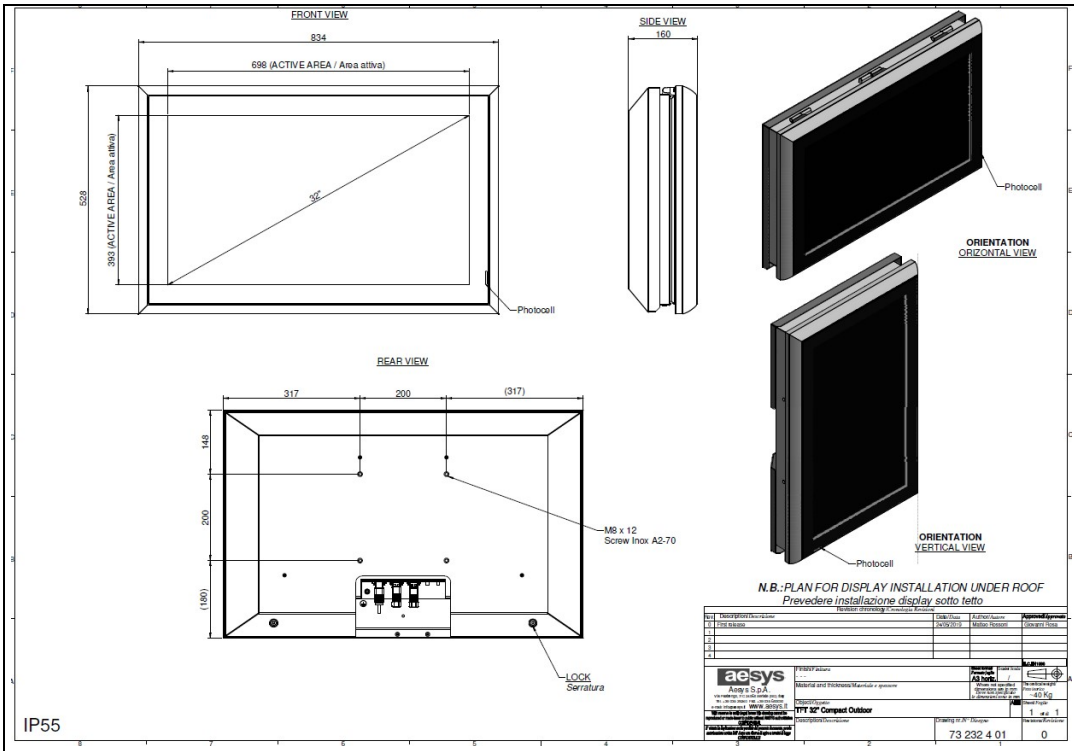
Optical specifications (matrix module)	
Size:	TFT 32"
Format:	16:9
Type:	Normally black
(*) Active area:	698.4 (H) x 392.85 (V) mm
(*) Pixel pitch:	0.36375 x 0.36375 mm x RGB
Pixel format:	1920 (H) x 1080 (V) (Native resolution)
Colour depth:	16.7M colors
Luminance:(on white colour)	1.000 cd/m^2 (typ.) @ Center point
Contrast ratio:	4000 : 1 typ. (with dimming)
Viewing angle (CR > 10):	R/L 178° (typ.) – U/D 178° (typ.)
Response time:	8ms (Typ., Grey-to-Grey)
Backlight Technology:	LED

Power Supply

Connector Type	Pin #	Signal	Description
Harting Push pull V4 Power plug	1	L	Line 230Vac power input
	2	N	Neutral 230Vac power input
	3	GND	Ground

Ethernet data line

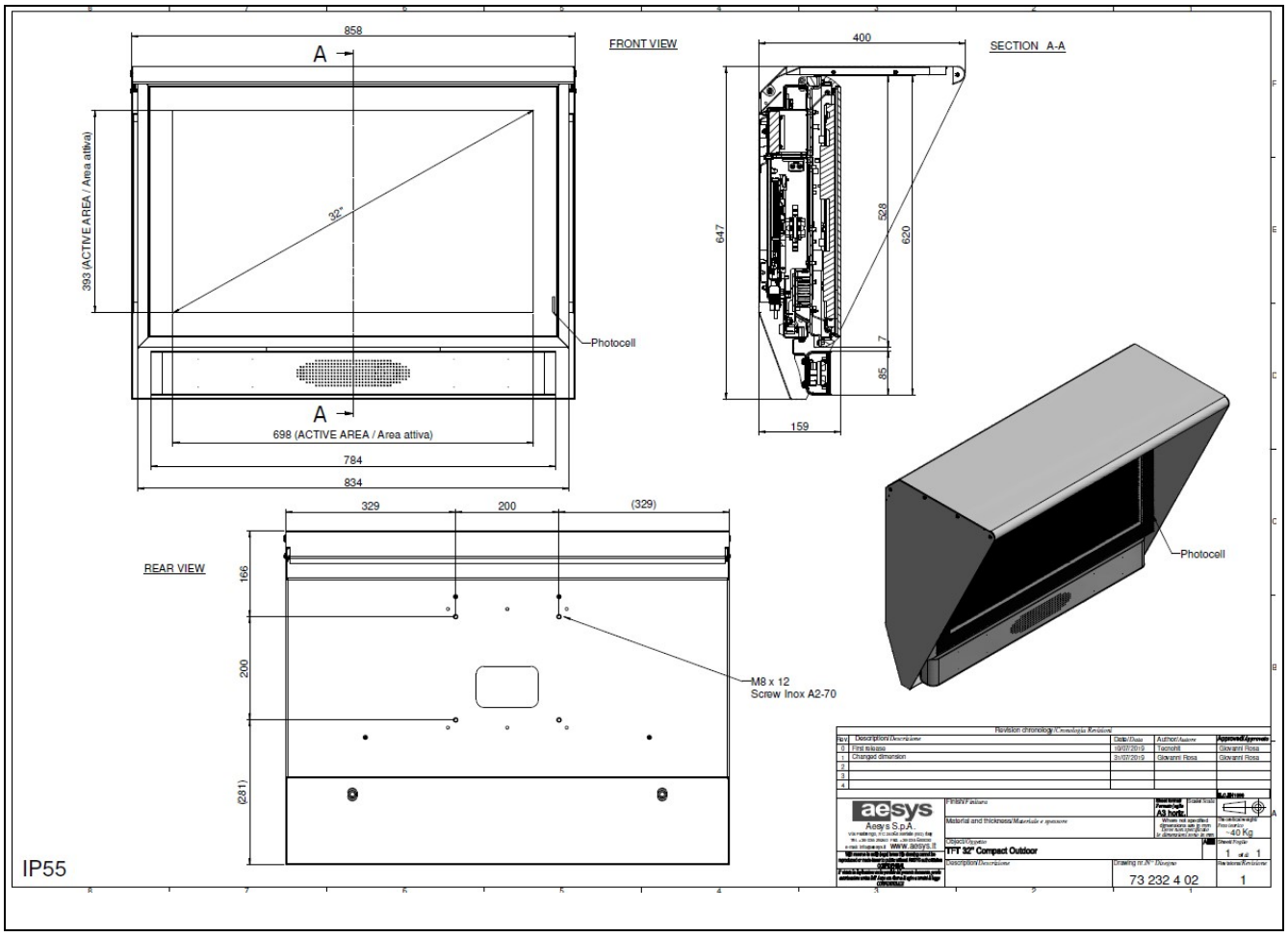
Connector Type	Pin #	Signal	Description
 Harting Push pull V4 RJ45	1	TX+	Transmit Data +
	2	TX-	Transmit Data -
	3	RX+	Receive Data +
	4	BI_DC+ (GHz)	DC+ for GBe
	5	BI_DC- (GHz)	DC- for GBe
	6	RX-	Receive Data -
	7	BI_DD+ (GHz)	DD+ for GBe
	8	BI_DD- (GHz)	DD- for GBe

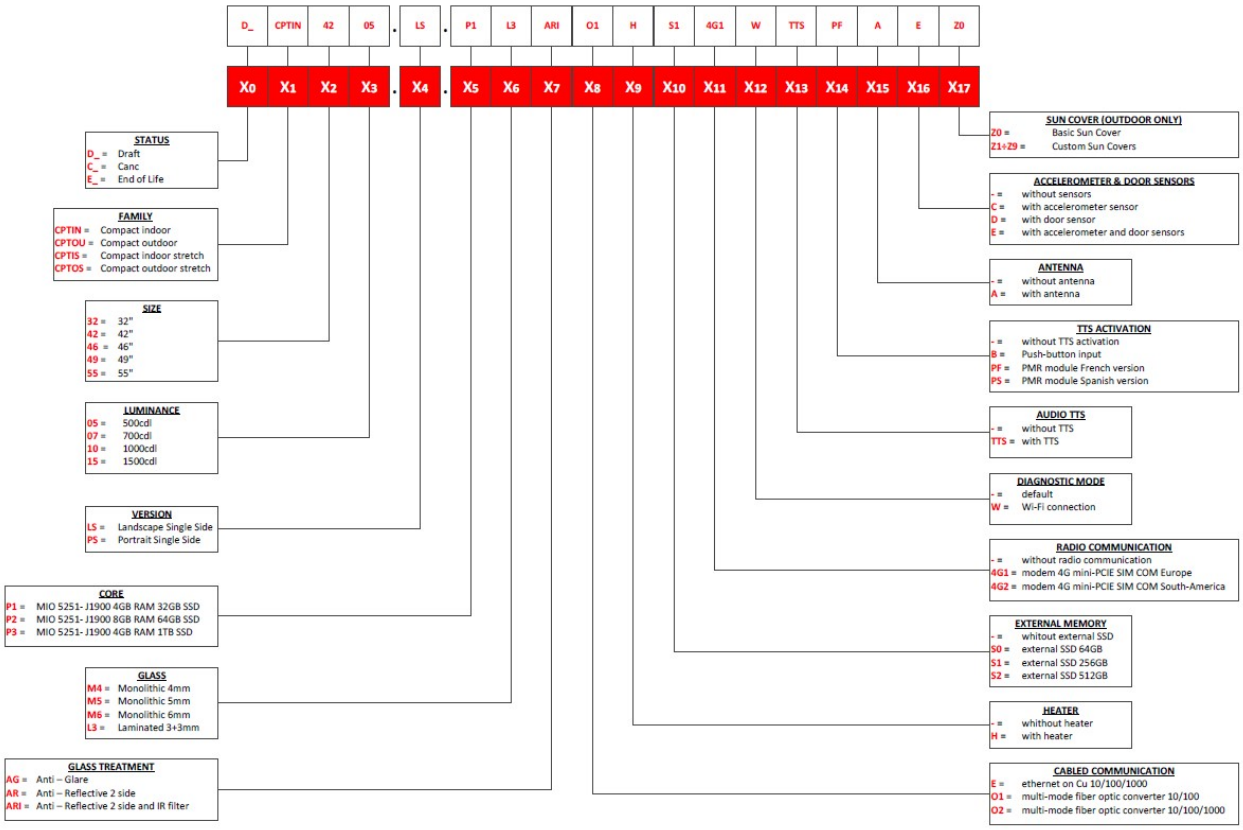


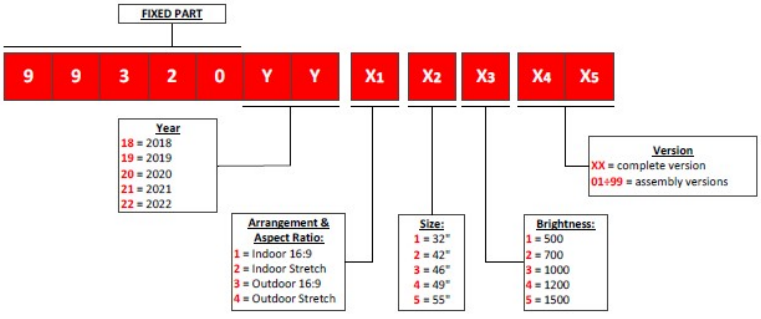
Derived models:

Model 993201931301 difference from basic model only commercial name.

Model 993201931302 difference from basic model added external protection solar light. (see drawing 73 232 4 02 issue by AESYS.


858
A
393 (ACTIVE AREA / Area attiva)
32"
Photocell
A
698 (ACTIVE AREA / Area attiva)
784
834
FRONT VIEW
400
SECTION A-A
647
528
620
7
85
159
329
200
(329)
REAR VIEW
166
200
Ø81)
M8 x 12
Screw Inox A2-70
Photocell
IP55
aesys
Aesys S.p.A.
www.aesys.it
TFT 32" Compact Outdoor
73 232 4 02


D_ CPTIN 42 05 . LS . P1 L3 ARI O1 H S1 4G1 W TTS PF A E Z0
X0 X1 X2 X3 . X4 . X5 X6 X7 X8 X9 X10 X11 X12 X13 X14 X15 X16 X17
STATUS
D_ = Draft
C_ = Canc
E_ = End of Life
FAMILY
CPTIN = Compact indoor
CPTOU = Compact outdoor
CPTIS = Compact indoor stretch
CPTOS = Compact outdoor stretch
SIZE
32 = 32"
42 = 42"
46 = 46"
49 = 49"
55 = 55"
LUMINANCE
05 = 500cdl
07 = 700cdl
10 = 1000cdl
15 = 1500cdl
VERSION
LS = Landscape Single Side
PS = Portrait Single Side
CORE
P1 = MIO 5251- J1900 4GB RAM 32GB SSD
P2 = MIO 5251- J1900 8GB RAM 64GB SSD
P3 = MIO 5251- J1900 4GB RAM 1TB SSD
GLASS
M4 = Monolithic 4mm
M5 = Monolithic 5mm
M6 = Monolithic 6mm
L3 = Laminated 3+3mm
GLASS TREATMENT
AG = Anti – Glare
AR = Anti – Reflective 2 side
ARI = Anti – Reflective 2 side and IR filter
SUN COVER (OUTDOOR ONLY)
Z0 = Basic Sun Cover
Z1÷Z9 = Custom Sun Covers
ACCELEROMETER & DOOR SENSORS
- = without sensors
C = with accelerometer sensor
D = with door sensor
E = with accelerometer and door sensors
ANTENNA
- = without antenna
A = with antenna
TTS ACTIVATION
- = without TTS activation
B = Push-button input
PF = PMR module French version
PS = PMR module Spanish version
AUDIO TTS
- = without TTS
TTS = with TTS
DIAGNOSTIC MODE
- = default
W = Wi-Fi connection
RADIO COMMUNICATION
- = without radio communication
4G1 = modem 4G mini-PCIE SIM COM Europe
4G2 = modem 4G mini-PCIE SIM COM South-America
EXTERNAL MEMORY
- = whitout external SSD
S0 = external SSD 64GB
S1 = external SSD 256GB
S2 = external SSD 512GB
HEATER
- = whithout heater
H = with heater
CABLED COMMUNICATION
E = ethernet on Cu 10/100/1000
O1 = multi-mode fiber optic converter 10/100
O2 = multi-mode fiber optic converter 10/100/1000


FIXED PART
9 9 3 2 0 Y Y X1 X2 X3 X4 X5
Year
18 = 2018
19 = 2019
20 = 2020
21 = 2021
22 = 2022
Arrangement & Aspect Ratio:
1 = Indoor 16:9
2 = Indoor Stretch
3 = Outdoor 16:9
4 = Outdoor Stretch
Size:
1 = 32"
2 = 42"
3 = 46"
4 = 49"
5 = 55"
Brightness:
1 = 500
2 = 700
3 = 1000
4 = 1200
5 = 1500
Version
XX = complete version
01÷99 = assembly versions

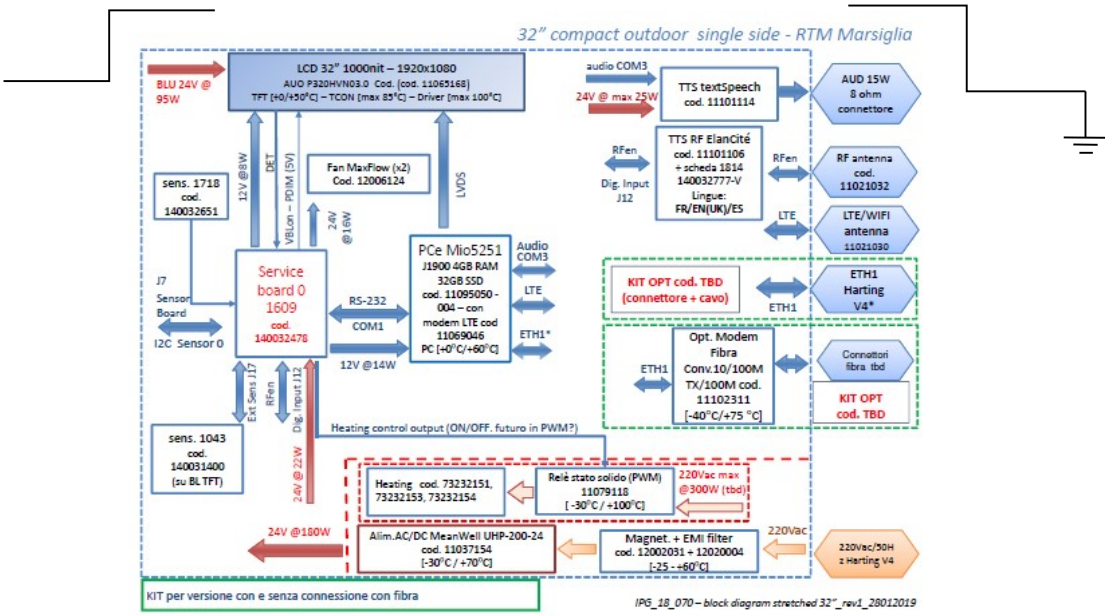
ENERGY SOURCE IDENTIFICATION AND CLASSIFICATION TABLE:	
(Note 1: Identify the following six (6) energy source forms based on the origin of the energy.) (Note 2: The identified classification e.g., ES2, TS1, should be with respect to its ability to cause pain or injury on the body or its ability to ignite a combustible material. Any energy source can be declared Class 3 as a worse case classification e.g. PS3, ES3.	
Electrically-caused injury (Clause 5): (Note: Identify type of source, list sub-assembly or circuit designation and corresponding energy source classification) Example: +5 V dc input ES1	
Source of electrical energy	**Corresponding classification (ES)**
220V- 240V	ES3
Electrically-caused fire (Clause 6): (Note: List sub-assembly or circuit designation and corresponding energy source classification) Example: Battery pack (maximum 85 watts): PS2	
Source of power or PIS	**Corresponding classification (PS)**
220V- 240V	PS3
Injury caused by hazardous substances (Clause 7) (Note: Specify hazardous chemicals, whether produces ozone or other chemical construction not addressed as part of the component evaluation.) Example: Liquid in filled component Glycol	
Source of hazardous substances	**Corresponding chemical**
No hazardous substances	
Mechanically-caused injury (Clause 8) (Note: List moving part(s), fan, special installations, etc. & corresponding MS classification based on Table 35.) Example: Wall mount unit MS2	
Source of kinetic/mechanical energy	**Corresponding classification (MS)**
Sharp edges and corners	MS1
Equipment mass	MS3
Thermal burn injury (Clause 9) (Note: Identify the surface or support, and corresponding energy source classification based on type of part, location, operating temperature and contact time in Table 38.) Example: Hand-held scanner – thermoplastic enclosure TS1	
Source of thermal energy	**Corresponding classification (TS)**
No parts that exceed limit of table 38	TS1
Radiation (Clause 10) (Note: List the types of radiation present in the product and the corresponding energy source classification.) Example: DVD – Class 1 Laser Product RS1	
Type of radiation	**Corresponding classification (RS)**
Indicating lights	RS1

ENERGY SOURCE DIAGRAM

Indicate which energy sources are included in the energy source diagram. Insert diagram below

Insulating accessible parts

Earthed accessible metal enclosure


32" compact outdoor single side - RTM Marsiglia
LCD 32" 1000nit – 1920x1080
AUO P320HVN03.0 Cod. (cod. 11065168)
TFT (+0/+50°C) – TCON (max 85°C) – Driver (max 100°C)
BLU 24V @ 95W
audio COM3
24V @ max 25W
TTS textSpeech cod. 11101114
AUD 15W 8 ohm connettore
TTS RF ElanCité cod. 11101106 + scheda 1814 140032777-V Lingue: FR/EN(UK)/ES
RFen
Dig. Input J12
RF antenna cod. 11021032
LTE
LTE/WIFI antenna 11021030
sens. 1718 cod. 140032651
12V @8W
DET
VBLon – PDIM (5V)
Fan MaxFlow (x2) Cod. 12006124
24V @16W
LVDS
PCe Mio5251 J1900 4GB RAM 32GB SSD cod. 11095050 - 004 – con modem LTE cod 11069046 PC [+0°C/+60°C]
Audio COM3
LTE
ETH1*
J7 Sensor Board
I2C Sensor 0
Service board 0 1609 cod. 140032478
RS-232
COM1
12V @14W
KIT OPT cod. TBD (connettore + cavo)
ETH1
ETH1 Harting V4*
Opt. Modem Fibra Conv.10/100M TX/100M cod. 11102311 [-40°C/+75 °C]
Connettori fibra tbd
KIT OPT cod. TBD
Ext Sens J17
RFen
Dig. Input J12
sens. 1043 cod. 140031400 (su BL TFT)
24V @ 22W
Heating control output (ON/OFF. futuro in PWM?)
Heating cod. 73232151, 73232153, 73232154
Relè stato solido (PWM) 11079118 [-30°C / +100°C]
220Vac max @300W (tbd)
24V @180W
Alim.AC/DC MeanWell UHP-200-24 cod. 11037154 [-30°C / +70°C]
Magnet. + EMI filter cod. 12002031 + 12020004 [-25 - +60°C]
220Vac
220Vac/50H z Harting V4
KIT per versione con e senza connessione con fibra
IPG_18_070 – block diagram stretched 32"_rev1_28012019

X ES X PS X MS X TS X RS

OVERVIEW OF EMPLOYED SAFEGUARDS				
Clause	**Possible Hazard**			
5.1	Electrically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (ES3: Primary Filter circuit)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
V.1;V.2; V.3; V.5; Ordinary	ES3: Primary circuit	P	P	P
	ES1:Secondary circuit	N/A	N/A	N/A
6.1	Electrically-caused fire			
Material part (e.g. mouse enclosure)	Energy Source (PS2: 100 Watt circuit)	Safeguards		
		Basic	Supplementary	Reinforced
EUT Enclosure	PS3	P	P	-
7.1	Injury caused by hazardous substances			
Body Part (e.g., skilled)	Energy Source (hazardous material)	Safeguards		
		Basic	Supplementary	Reinforced
N/A	N/A	-	-	-
-	-	-	-	-
8.1	Mechanically-caused injury			
Body Part (e.g. Ordinary)	Energy Source (MS3:High Pressure Lamp)	Safeguards		
		Basic	Supplementary	Reinforced (Enclosure)
Sharp edges; Ordinary	MS1	N/A	N/A	N/A
Equipment mass; Ordinary	MS3	P	P	-
9.1	Thermal Burn			
Body Part (e.g., Ordinary)	Energy Source (TS2)	Safeguards		
		Basic	Supplementary	Reinforced
Hand V.2; Ordinary	TS1	N/A	N/A	N/A
-	-	-	-	-
10.1	Radiation			
Body Part (e.g., Ordinary)	Energy Source (Output from audio port)	Safeguards		
		Basic	Supplementary	Reinforced
Eyes Lamps and LEDs; Ordinary	RS1	N/A	N/A	N/A
-		-	-	-
Supplementary Information: (1) See attached energy source diagram for additional details. (2) “N” – Normal Condition; “A” – Abnormal Condition; “S” Single Fault				

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4	**GENERAL REQUIREMENTS**		P
4.1.1	Acceptance of materials, components and subassemblies		P
4.1.2	Use of components		P
4.1.3	Equipment design and construction		P
4.1.15	Markings and instructions.....:	(See Annex F)	P
4.4.4	Safeguard robustness		P
4.4.4.2	Steady force tests.....:	(See Annex T.4, T.5)	P
4.4.4.3	Drop tests .....:	(See Annex T.7) No transportable equipment	N/A
4.4.4.4	Impact tests .....:	(See Annex T.6)	P
4.4.4.5	Internal accessible safeguard enclosure and barrier tests.....:	(See Annex T.3)	N/A
4.4.4.6	Glass Impact tests .....:	(See Annex T.9, Annex U)	P
4.4.4.74	Thermoplastic material tests.....:	(See Annex T.8) Metal enclosure	N/A
4.4.4.8	Air comprising a safeguard.....:	(See Annex T)	P
4.4.4.9	Accessibility and safeguard effectiveness	Not expel pieces of glass.	P
4.5	Explosion	No these parts	N/A
4.6	Fixing of conductors		P
4.6.1	Fix conductors not to defeat a safeguard		P
4.6.2	10 N force test applied to .....:	Mains and earthed conductors	P
4.7	Equipment for direct insertion into mains socket - outlets	No such kind	N/A
4.7.2	Mains plug part complies with the relevant standard.....:		N/A
4.7.3	Torque (Nm) .....:		N/A
4.8	Products containing coin/button cell batteries	No such batteries	N/A
4.8.2	Instructional safeguard		N/A
4.8.3	Battery Compartment Construction		N/A
	Means to reduce the possibility of children removing the battery.....:		—
4.8.4	Battery Compartment Mechanical Tests .....:	(See Table 4.8.4)	N/A
4.8.5	Battery Accessibility		N/A
4.9	Likelihood of fire or shock due to entry of conductive object.....:	(See Annex P) Side opening	P

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Clause	Requirement + Test	Result - Remark	Verdict
5	**ELECTRICALLY-CAUSED INJURY**		P
5.2.1	Electrical energy source classifications ..... :	(See appended table 5.2)	P
5.2.2	ES1, ES2 and ES3 limits	ES3, primary circuit ES1, Secondary circuit 24Vdc (SELV) is connected to earthed circuit	P
5.2.2.2	Steady-state voltage and current..... :	See appended table 5.2)	P
5.2.2.3	Capacitance limits ..... :	(See appended table 5.2)	N/A
5.2.2.4	Single pulse limits ..... :	(See appended table 5.2)	N/A
5.2.2.5	Limits for repetitive pulses ..... :	(See appended table 5.2)	N/A
5.2.2.6	Ringing signals ..... :	(See Annex H)	N/A
5.2.2.7	Audio signals ..... :	(See Clause E.1) ES1	P
5.3	Protection against electrical energy sources		P
5.3.1	General Requirements for accessible parts to ordinary, instructed and skilled persons	Ordinary	P
5.3.2.1	Accessibility to electrical energy sources and safeguards		P
5.3.2.2	Contact requirements	.	P
	a) Test with test probe from Annex V ..... :	ES3,240Vrms, 339Vpk.	P
	b) Electric strength test potential (V) ..... :		N/A
	c) Air gap (mm) ..... :		N/A
5.3.2.4	Terminals for connecting stripped wire	No these parts	N/A
5.4	Insulation materials and requirements		-
5.4.1.2	Properties of insulating material	AC/DC Power Supply is separately certified	P
5.4.1.3	Humidity conditioning ..... :	(See sub-clause 5.4.8)	P
5.4.1.4	Maximum operating temperature for insulating materials ..... :	(See appended table 5.4.1.4) AC/DC Power Supply is separately certified	P
5.4.1.5	Pollution degree ..... :	2	—
5.4.1.5.2	Test for pollution degree 1 environment and for an insulating compound		N/A
5.4.1.5.3	Thermal cycling		N/A
5.4.1.6	Insulation in transformers with varying dimensions		N/A
5.4.1.7	Insulation in circuits generating starting pulses	No such elements	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.1.8	Determination of working voltage	AC/DC Power Supply is separately certified. Primary circuit 240Vac Secondary circuits 24Vdc	P
5.4.1.9	Insulating surfaces		P
5.4.1.10	Thermoplastic parts on which conductive metallic parts are directly mounted	AC/DC Power Supply is separately certified.	P
5.4.1.10.2	Vicat softening temperature ..... :	(See appended table 5.4.1.10.2) 125°C	P
5.4.1.10.3	Ball pressure ..... :	(See appended table 5.4.1.10.3) Terminals are separately certified.	P
5.4.2	Clearances		P
5.4.2.2	Determining clearance using peak working voltage	(See appended table 5.4.2.2)	N/A
5.4.2.3	Determining clearance using required withstand voltage ..... :	(See appended table 5.4.2.3)	P
	a) a.c. mains transient voltage ..... :	2500V	—
	b) d.c. mains transient voltage ..... :		—
	c) external circuit transient voltage ..... :	No TNV and antenna connections	—
	d) transient voltage determined by measurement ... :		—
5.4.2.4	Determining the adequacy of a clearance using an electric strength test	(See appended table 5.4.2.4)	N/A
5.4.2.5	Multiplication factors for clearances and test voltages ..... :		N/A
5.4.3	Creepage distances ..... :	(See appended table 5.4.3)	P
5.4.3.1	General	AC/DC Power Supply is separately certified.	P
5.4.3.3	Material Group ..... :	IIIb	—
5.4.4	Solid insulation		P
5.4.4.2	Minimum distance through insulation ..... :	(See appended table 5.4.4.2)	P
5.4.4.3	Insulation compound forming solid insulation	Not used	N/A
5.4.4.4	Solid insulation in semiconductor devices		N/A
5.4.4.5	Cemented joints		N/A
5.4.4.6	Thin sheet material		N/A
5.4.4.6.1	General requirements		N/A
5.4.4.6.2	Separable thin sheet material		N/A
	Number of layers (pcs) ..... :		N/A
5.4.4.6.3	Non-separable thin sheet material		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.4.4.6.4	Standard test procedure for non-separable thin sheet material ..... :	(See appended Table 5.4.9)	N/A
5.4.4.6.5	Mandrel test		N/A
5.4.4.7	Solid insulation in wound components	AC/DC Power Supply is separately certified.	P
5.4.4.9	Solid insulation at frequencies >30 kHz ..... :	(See appended Table 5.4.4.9)	N/A
5.4.5	Antenna terminal insulation		N/A
5.4.5.1	General		N/A
5.4.5.2	Voltage surge test		N/A
	Insulation resistance (MΩ)..... :		—
5.4.6	Insulation of internal wire as part of supplementary safeguard ..... :	(See appended table 5.4.4.2)	N/A
5.4.7	Tests for semiconductor components and for cemented joints		N/A
5.4.8	Humidity conditioning		P
	Relative humidity (%)..... :	93% rh	—
	Temperature (°C) ..... :	25°C	—
	Duration (h) ..... :	48h	—
5.4.9	Electric strength test ..... :	(See appended table 5.4.9)	P
5.4.9.1	Test procedure for a solid insulation type test		P
5.4.9.2	Test procedure for routine tests		P
5.4.10	Protection against transient voltages between external circuit	No TNV connections. No transient voltages on Ethernet connection. (Ethernet 10BaseT)	N/A
5.4.10.1	Parts and circuits separated from external circuits	(See appended table 5.4.9)	N/A
5.4.10.2	Test methods		N/A
5.4.10.2.1	General		N/A
5.4.10.2.2	Impulse test ..... :	(See appended table 5.4.9)	N/A
5.4.10.2.3	Steady-state test..... :	(See appended table 5.4.9)	N/A
5.4.11	Insulation between external circuits and earthed circuitry ..... :	(See appended table 5.4.9)	N/A
5.4.11.1	Exceptions to separation between external circuits and earth		N/A
5.4.11.2	Requirements		N/A
	Rated operating voltage U_{op} (V)..... :		—
	Nominal voltage U_{peak} (V)..... :		—
	Max increase due to variation U_{sp} ..... :		—
	Max increase due to ageing ΔU_{sa} ..... :		—

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Clause	Requirement + Test	Result - Remark	Verdict
	$U_{op}= U_{peak} + \Delta U_{sp} + \Delta U_{sa}$ .....:		—
5.5	Components as safeguards		
5.5.1	General	AC/DC Power Supply is separately certified.	P
5.5.2	Capacitors and RC units		N/A
5.5.2.1	General requirement		N/A
5.5.2.2	Safeguards against capacitor discharge after disconnection of a connector.....:	(See appended table 5.5.2.2)	P
5.5.3	Transformers	(See Annex G.5.3)	N/A
5.5.4	Optocouplers	(See sub-clause 5.4 or Annex G.12)	N/A
5.5.5	Relays	(See Annex G.2)	N/A
5.5.6	Resistors	(See Annex G.10)	N/A
5.5.7	SPD's	(See Annex G.8)	N/A
5.5.7.1	Use of an SPD connected to reliable earthing		N/A
5.5.7.2	Use of an SPD between mains and protective earth		N/A
5.5.8	Insulation between the mains and external circuit consisting of a coaxial cable.....:	(See Annex G.10.3)	N/A
5.6	Protective conductor		-
5.6.2	Requirement for protective conductors		P
5.6.2.1	General requirements		P
5.6.2.2	Colour of insulation		P
5.6.3	Requirement for protective earthing conductors	Mains power supply cord not supplied by manufacturer.	N/A
	Protective earthing conductor size (mm^2) .....:	2,6A; required 0,5mm^2; used 1,5mm^2	—
5.6.4	Requirement for protective bonding conductors		P
5.6.4.1	Protective bonding conductors	See par.5.6.6	N/A
	Protective bonding conductor size (mm^2). .....:		—
	Protective current rating (A) ..... :		—
5.6.4.3	Current limiting and overcurrent protective devices	Miniature Circuit Breaker - +PA1-Q1 2P C10A (+PA1-X2) Fuse T3,15A 250V before heather +FT1-E1 to +FT1-E4	P
5.6.5	Terminals for protective conductors	See par.5.6.6	P
5.6.5.1	Requirement		P
	Conductor size (mm^2), nominal thread diameter (mm). .....:	used 1,5 mm^2; >3,5mm	P
5.6.5.2	Corrosion		P

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Clause	Requirement + Test	Result - Remark	Verdict
5.6.6	Resistance of the protective system		P
5.6.6.1	Requirements		P
5.6.6.2	Test Method Resistance (Ω).....:	(See appended table 5.6.6.2)	P
5.6.7	Reliable earthing	Stationary equipment, used in the location with equipment bonding and installation by skilled person	P
5.7	Prospective touch voltage, touch current and protective conductor current		-
5.7.2	Measuring devices and networks		P
5.7.2.1	Measurement of touch current .....:	(See appended table 5.7.4)	P
5.7.2.2	Measurement of prospective touch voltage		N/A
5.7.3	Equipment set-up, supply connections and earth connections		P
	System of interconnected equipment (separate connections/single connection) .....:	single connection	—
	Multiple connections to mains (one connection at a time/simultaneous connections) .....:		—
5.7.4	Earthed conductive accessible parts.....:	(See appended Table 5.7.4)	P
5.7.5	Protective conductor current		P
	Supply Voltage (V).....:	253	—
	Measured current (mA).....:	0,6	—
	Instructional Safeguard.....:	(See F.4 and F.5)	N/A
5.7.6	Prospective touch voltage and touch current due to external circuits		P
5.7.6.1	Touch current from coaxial cables		N/A
5.7.6.2	Prospective touch voltage and touch current from external circuits	Limit 0,25mA, measured 0,01mA (insulating enclosure, Ethernet 10/100TX input)	P
5.7.7	Summation of touch currents from external circuits	No TNV connection	N/A
	a) Equipment with earthed external circuits Measured current (mA).....:		N/A
	b) Equipment whose external circuits are not referenced to earth. Measured current (mA).....:		N/A
6	**ELECTRICALLY- CAUSED FIRE**		P
6.2	Classification of power sources (PS) and potential ignition sources (PIS)		P
6.2.2	Power source circuit classifications		P
6.2.2.1	General		P
6.2.2.2	Power measurement for worst-case load fault ... :	(See appended table 6.2.2)	P

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Clause	Requirement + Test	Result - Remark	Verdict
6.2.2.3	Power measurement for worst-case power source fault ..... :	(See appended table 6.2.2)	P
6.2.2.4	PS1 ..... :	(See appended table 6.2.2)	N/A
6.2.2.5	PS2 ..... :	(See appended table 6.2.2)	N/A
6.2.2.6	PS3 ..... :	(See appended table 6.2.2)	P
6.2.3	Classification of potential ignition sources		P
6.2.3.1	Arcing PIS ..... :	(See appended table 6.2.3.1)	P
6.2.3.2	Resistive PIS ..... :	(See appended table 6.2.3.2)	P
6.3	Safeguards against fire under normal operating and abnormal operating conditions		-
6.3.1 (a)	No ignition and attainable temperature value less than 90 % defined by ISO 871 or less than 300 °C for unknown materials ..... :	(See appended table 5.4.1.5, 6.3.2, 9.0, B.2.6)	P
6.3.1 (b)	Combustible materials outside fire enclosure		N/A
6.4	Safeguards against fire under single fault conditions		-
6.4.1	Safeguard Method	See 6.4.6	P
6.4.2	Reduction of the likelihood of ignition under single fault conditions in PS1 circuits		N/A
6.4.3	Reduction of the likelihood of ignition under single fault conditions in PS2 and PS3 circuits		N/A
6.4.3.1	General		N/A
6.4.3.2	Supplementary Safeguards		N/A
	Special conditions if conductors on printed boards are opened or peeled		N/A
6.4.3.3	Single Fault Conditions ..... :	(See appended table B3 and B4)	N/A
	Special conditions for temperature limited by fuse		N/A
6.4.4	Control of fire spread in PS1 circuits		N/A
6.4.5	Control of fire spread in PS2 circuits		N/A
6.4.5.2	Supplementary safeguards ..... :	(See appended tables 4.1.2 and Annex G)	N/A
6.4.6	Control of fire spread in PS3 circuit		P
6.4.7	Separation of combustible materials from a PIS	PCB is UL94 V-0 Enclosure is metal	P
6.4.7.1	General ..... :	(See tables 6.2.3.1 and 6.2.3.2)	N/A
6.4.7.2	Separation by distance		N/A
6.4.7.3	Separation by a fire barrier		N/A
6.4.8	Fire enclosures and fire barriers	Fire enclosures	P
6.4.8.1	Fire enclosure and fire barrier material properties		P
6.4.8.2.1	Requirements for a fire barrier		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
6.4.8.2.2	Requirements for a fire enclosure	<4000W, Metal enclosure	N/A
6.4.8.3	Constructional requirements for a fire enclosure and a fire barrier		P
6.4.8.3.1	Fire enclosure and fire barrier openings		P
6.4.8.3.2	Fire barrier dimensions		P
6.4.8.3.3	Top Openings in Fire Enclosure: dimensions (mm) .....:	No openings	N/A
	Needle Flame test		N/A
6.4.8.3.4	Bottom Openings in Fire Enclosure, condition met a), b) and/or c) dimensions (mm) .....:	No openings	N/A
	Flammability tests for the bottom of a fire enclosure .....:		N/A
6.4.8.3.5	Integrity of the fire enclosure, condition met: a), b) or c) .....:	No door or cover	N/A
6.4.8.4	Separation of PIS from fire enclosure and fire barrier distance (mm) or flammability rating.....:	Metal enclosure	N/A
6.5	Internal and external wiring		—
6.5.1	Requirements		P
6.5.2	Cross-sectional area (mm^2) .....:	1,5mm^2	—
6.5.3	Requirements for interconnection to building wiring .....:	(See Annex Q.) Not provide power	N/A
6.6	Safeguards against fire due to connection to additional equipment	Also all accessories connectable are already certified	P
	External port limited to PS2 or complies with Clause Q.1		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
7	**INJURY CAUSED BY HAZARDOUS SUBSTANCES**		N/A
7.2	Reduction of exposure to hazardous substances	No hazardous substances	N/A
7.3	Ozone exposure		N/A
7.4	Use of personal safeguards (PPE)		N/A
	Personal safeguards and instructions ..... :		—
7.5	Use of instructional safeguards and instructions		N/A
	Instructional safeguard (ISO 7010) .....:		—
7.6	Batteries.....:	(See Annex M)	N/A
8	**MECHANICALLY-CAUSED INJURY**		P
8.1	General		P
8.2	Mechanical energy source classifications		P
8.3	Safeguards against mechanical energy sources	MS1 (Line1);MS3 (Line 6)	P
8.4	Safeguards against parts with sharp edges and corners	No sharp edges and corners	P
8.4.1	Safeguards	MS1	N/A
8.5	Safeguards against moving parts	Only door moving with hand during assistance by service person.	N/A
8.5.1	MS2 or MS3 part required to be accessible for the function of the equipment		N/A
8.5.2	Instructional Safeguard..... :		—
8.5.4	Special categories of equipment comprising moving parts		N/A
8.5.4.1	Large data storage equipment		N/A
8.5.4.2	Equipment having electromechanical device for destruction of media		N/A
8.5.4.2.1	Safeguards and Safety Interlocks .....:	(See Annex F.4 and Annex K)	N/A
8.5.4.2.2	Instructional safeguards against moving parts		N/A
	Instructional Safeguard.....:		—
8.5.4.2.3	Disconnection from the supply		N/A
8.5.4.2.4	Probe type and force (N) .....:		N/A
8.5.5	High Pressure Lamps		N/A
8.5.5.1	Energy Source Classification		N/A
8.5.5.2	High Pressure Lamp Explosion Test.....:	(See appended table 8.5.5.2)	N/A
8.6	Stability	Fixed	P
8.6.1	Product classification		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Instructional Safeguard.....:		—
8.6.2	Static stability	Fixed	N/A
8.6.2.2	Static stability test		N/A
	Applied Force .....:		—
8.6.2.3	Downward Force Test		N/A
8.6.3	Relocation stability test		N/A
	Unit configuration during 10° tilt.....:		—
8.6.4	Glass slide test		N/A
8.6.5	Horizontal force test (Applied Force).....:		N/A
	Position of feet or movable parts.....:		—
8.7	Equipment mounted to wall or ceiling	MS3	P
8.7.1	Mounting Means (Length of screws (mm) and mounting surface) .....:	Stud 15x20mm with block screws M8x12; metal surface	P
8.7.2	Direction and applied force.....:	(mass 41Kg); 1609N /4; 402N; 90°; 1min	P
8.8	Handles strength	No handless purpose of lifting or carrying.	N/A
8.8.1	Classification		N/A
8.8.2	Applied Force .....:		N/A
8.9	Wheels or casters attachment requirements	No wheels	N/A
8.9.1	Classification		N/A
8.9.2	Applied force .....:		—
8.10	Carts, stands and similar carriers	No such elements	N/A
8.10.1	General		N/A
8.10.2	Marking and instructions		N/A
	Instructional Safeguard.....:		—
8.10.3	Cart, stand or carrier loading test and compliance		N/A
	Applied force .....:		—
8.10.4	Cart, stand or carrier impact test		N/A
8.10.5	Mechanical stability		N/A
	Applied horizontal force (N).....:		—
8.10.6	Thermoplastic temperature stability (°C).....:		N/A
8.11	Mounting means for rack mounted equipment	Not for rack installation	N/A
8.11.1	General		N/A
8.11.2	Product Classification		N/A
8.11.3	Mechanical strength test, variable *N* .....:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
8.11.4	Mechanical strength test 250N, including end stops		N/A
8.12	Telescoping or rod antennas	(See Annex T)	N/A
	Button/Ball diameter (mm).....:		—
9	**THERMAL BURN INJURY**		P
9.2	Thermal energy source classifications	TS1	P
9.3	Safeguard against thermal energy sources	No thermal energy sources	N/A
9.4	Requirements for safeguards		—
9.4.1	Equipment safeguard		N/A
9.4.2	Instructional safeguard .....:		N/A
10	**RADIATION**		P
10.2	Radiation energy source classification	Led and Lamp, RG-1; RG-2	P
10.2.1	General classification	RS1	P
10.3	Protection against laser radiation		N/A
	Laser radiation that exists equipment:		—
	Normal, abnormal, single-fault..... :	(See attached laser test report)	N/A
	Instructional safeguard ..... :		—
	Tool..... :		—
10.4	Protection against visible, infrared, and UV radiation		N/A
10.4.1	General		N/A
10.4.1.a)	RS3 for Ordinary and instructed persons .....:		N/A
10.4.1.b)	RS3 accessible to a skilled person.....:		N/A
	Personal safeguard (PPE) instructional safeguard.....:		—
10.4.1.c)	Equipment visible, IR, UV does not exceed RS1 . :		N/A
10.4.1.d)	Normal, abnormal, single-fault conditions .....:	(See appended table B.3 & B.4)	N/A
10.4.1.e)	Enclosure material employed as safeguard is opaque.....:		N/A
10.4.1.f)	UV attenuation.....:		N/A
10.4.1.g)	Materials resistant to degradation UV .....:		N/A
10.4.1.h)	Enclosure containment of optical radiation.....:		N/A
10.4.1.i)	Exempt Group under normal operating conditions.....:		N/A
10.4.2	Instructional safeguard .....:		N/A
10.5	Protection against x-radiation		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
10.5.1	X- radiation energy source that exists equipment:	(See appended table B.3 & B.4)	N/A
	Normal, abnormal, single fault conditions		N/A
	Equipment safeguards.....:		N/A
	Instructional safeguard for skilled person..... :		N/A
10.5.3	Most unfavourable supply voltage to give maximum radiation .....:		—
	Abnormal and single-fault condition ..... :	(See appended table B.3 & B.4)	N/A
	Maximum radiation (pA/kg)..... :		N/A
10.6	Protection against acoustic energy sources	No personal music players	N/A
10.6.1	General		N/A
10.6.2	Classification		N/A
	Acoustic output, dB(A)..... :		N/A
	Output voltage, unweighted r.m.s..... :		N/A
10.6.4	Protection of persons		N/A
	Instructional safeguards ..... :		N/A
	Equipment safeguard prevent ordinary person to RS2..... :		—
	Means to actively inform user of increase sound pressure..... :		—
	Equipment safeguard prevent ordinary person to RS2..... :		—
10.6.5	Requirements for listening devices (headphones, earphones, etc.)		N/A
10.6.5.1	Corded passive listening devices with analog input		N/A
	Input voltage with 94 dB(A) L_{Aeq} acoustic pressure output..... :		—
10.6.5.2	Corded listening devices with digital input		N/A
	Maximum dB(A)..... :		—
10.6.5.3	Cordless listening device		N/A
	Maximum dB(A)..... :		—

B	**NORMAL OPERATING CONDITION TESTS, ABNORMAL OPERATING CONDITION TESTS AND SINGLE FAULT CONDITION TESTS**		P
B.2	Normal Operating Conditions		P
B.2.1	General requirements..... :	(See Test Item Particulars and appended test tables)	P

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Clause	Requirement + Test	Result - Remark	Verdict
	Audio Amplifiers and equipment with audio amplifiers ..... :	(See Annex E) No audio amplifiers. Equipment with output audio for external soundbar. Optional not supplied by manufacturer.	N/A
B.2.3	Supply voltage and tolerances		P
B.2.5	Input test..... :	(See appended table B.2.5)	P
B.3	Simulated abnormal operating conditions		—
B.3.1	General requirements..... :	(See appended table B.3)	P
B.3.2	Covering of ventilation openings		P
B.3.3	D.C. mains polarity test	A.C supply	N/A
B.3.4	Setting of voltage selector ..... :	On AC /DC power supply, separately certified	P
B.3.5	Maximum load at output terminals ..... :	Ethernet 10/100TX input terminals. No hazard	P
B.3.6	Reverse battery polarity	Not battery	N/A
B.3.7	Abnormal operating conditions as specified in Clause E.2.	No audio	N/A
B.3.8	Safeguards functional during and after abnormal operating conditions		P
B.4	Simulated single fault conditions		—
B.4.2	Temperature controlling device open or short-circuited ..... :	(See appended table B.4)	P
B.4.3	Motor tests	No such elements	N/A
B.4.3.1	Motor blocked or rotor locked increasing the internal ambient temperature ..... :	(See Clause G.5)	N/A
B.4.4	Short circuit of functional insulation		P
B.4.4.1	Short circuit of clearances for functional insulation		P
B.4.4.2	Short circuit of creepage distances for functional insulation		P
B.4.4.3	Short circuit of functional insulation on coated printed boards	Not a coated PCB	N/A
B.4.5	Short circuit and interruption of electrodes in tubes and semiconductors		P
B.4.6	Short circuit or disconnect of passive components		P
B.4.7	Continuous operation of components	Relay +PA1-K1	P
B.4.8	Class 1 and Class 2 energy sources within limits during and after single fault conditions		P
B.4.9	Battery charging under single fault conditions ... :	(See Annex M)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
C	**UV RADIATION**		N/A
C.1	Protection of materials in equipment from UV radiation	No such elements	N/A
C.1.2	Requirements		N/A
C.1.3	Test method		N/A
C.2	UV light conditioning test		N/A
C.2.1	Test apparatus		N/A
C.2.2	Mounting of test samples		N/A
C.2.3	Carbon-arc light-exposure apparatus		N/A
C.2.4	Xenon-arc light exposure apparatus		N/A
D	**TEST GENERATORS**		N/A
D.1	Impulse test generators		N/A
D.2	Antenna interface test generator		N/A
D.3	Electronic pulse generator		N/A
E	**TEST CONDITIONS FOR EQUIPMENT CONTAINING AUDIO AMPLIFIERS**		N/A
E.1	Audio amplifier normal operating conditions		N/A
	Audio signal voltage (V) .....:		—
	Rated load impedance (Ω) .....:		—
E.2	Audio amplifier abnormal operating conditions		N/A
F	**EQUIPMENT MARKINGS, INSTRUCTIONS, AND INSTRUCTIONAL SAFEGUARDS**		P
F.1	General requirements		P
	Instructions – Language .....:	EN,FR,ITA	—
F.2	Letter symbols and graphical symbols		P
F.2.1	Letter symbols according to IEC60027-1		P
F.2.2	Graphic symbols IEC, ISO or manufacturer specific	IEC, ISO	P
F.3	Equipment markings		—
F.3.1	Equipment marking locations	Back of device	P
F.3.2	Equipment identification markings		P
F.3.2.1	Manufacturer identification .....:	aesys	—
F.3.2.2	Model identification .....:	Compact TFT 32” Outdoor IP55 P/N: 993201900100	—
F.3.3	Equipment rating markings		P
F.3.3.1	Equipment with direct connection to mains		P
F.3.3.2	Equipment without direct connection to mains		N/A
F.3.3.3	Nature of supply voltage.....:	AC	—
F.3.3.4	Rated voltage .....:	See page 2	—

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Clause	Requirement + Test	Result - Remark	Verdict
F.3.3.4	Rated frequency ..... :	See page 2	—
F.3.3.6	Rated current or rated power ..... :	See page 2	—
F.3.3.7	Equipment with multiple supply connections		N/A
F.3.4	Voltage setting device		N/A
F.3.5	Terminals and operating devices		P
F.3.5.1	Mains appliance outlet and socket-outlet markings ..... :	No these parts	N/A
F.3.5.2	Switch position identification marking ..... :	I/O	P
F.3.5.3	Replacement fuse identification and rating markings ..... :	Only skilled person. Miniature Circuit Breaker +PA1-Q1 2P C10A +PA1-U1Fuse T5A 250V on Mains filter + PA1-X2; Fuse T3,15A 250V on heater E1 to E4	N/A
F.3.5.4	Replacement battery identification marking ..... :	No battery	N/A
F.3.5.5	Terminal marking location		P
F.3.6	Equipment markings related to equipment classification		P
F.3.6.1	Class I Equipment		P
F.3.6.1.1	Protective earthing conductor terminal	Terminal and External connection IEC60417-5019	P
F.3.6.1.2	Neutral conductor terminal		N/A
F.3.6.1.3	Protective bonding conductor terminals		N/A
F.3.6.2	Class II equipment (IEC60417-5172)		N/A
F.3.6.2.1	Class II equipment with or without functional earth		N/A
F.3.6.2.2	Class II equipment with functional earth terminal marking		N/A
F.3.7	Equipment IP rating marking ..... :	IP55	—
F.3.8	External power supply output marking		N/A
F.3.9	Durability, legibility and permanence of marking	Hexane used	P
F.3.10	Test for permanence of markings		P
F.4	Instructions		—
	a) Equipment for use in locations where children not likely to be present - marking	Equipment is used in locations where the children are present. Tested with both V.1 and V.2 probes.	N/A
	b) Instructions given for installation or initial use	Instruction use manual supplied	P
	c) Equipment intended to be fastened in place		P
	d) Equipment intended for use only in restricted access area		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	e) Audio equipment terminals classified as ES3 and other equipment with terminals marked in accordance F.3.6.1		N/A
	f) Protective earthing employed as safeguard	See in the user manual	P
	g) Protective earthing conductor current exceeding ES 2 limits		N/A
	h) Symbols used on equipment		N/A
	i) Permanently connected equipment not provided with all-pole mains switch	All-pole mains switch used	N/A
j)	j) Replaceable components or modules providing safeguard function		P
F.5	Instructional safeguards		N/A
	Where “instructional safeguard” is referenced in the test report it specifies the required elements, location of marking and/or instruction		N/A
G	**COMPONENTS**		P
G.1	**Switches**		—
G.1.1	General requirements	GW90046 C10, separately certified	P
G.1.2	Ratings, endurance, spacing, maximum load		N/A
G.2	**Relays**		—
G.2.1	General requirements	+PA1-SSR1, Solid State Relay, separately approved	N/A
G.2.2	Overload test		N/A
G.2.3	Relay controlling connectors supply power		N/A
G.2.4	Mains relay, modified as stated in G.2		N/A
G.3	**Protection Devices**		—
G.3.1	Thermal cut-offs	No such elements	N/A
G.3.1.1a) &b)	Thermal cut-outs separately approved according to IEC 60730 with conditions indicated in a) & b)		N/A
G.3.1.1c)	Thermal cut-outs tested as part of the equipment as indicated in c)		N/A
G.3.1.2	Thermal cut-off connections maintained and secure		N/A
G.3.2	Thermal links		—
G.3.2.1a)	Thermal links separately tested with IEC 60691	No such elements	N/A
G.3.2.1b)	Thermal links tested as part of the equipment		N/A
	Aging hours (H) ..... :		—
	Single Fault Condition ..... :		—
	Test Voltage (V) and Insulation Resistance (Ω). :		—

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Clause	Requirement + Test	Result - Remark	Verdict
G.3.3	PTC Thermistors		N/A
G.3.4	Overcurrent protection devices		N/A
G.3.5	Safeguards components not mentioned in G.3.1 to G.3.5		—
G.3.5.1	Non-resettable devices suitably rated and marking provided	No such elements	N/A
G.3.5.2	Single faults conditions.....:	(See appended Table B.4)	N/A
G.4	**Connectors**		—
G.4.1	Spacings		N/A
G.4.2	Mains connector configuration .....:	Terminal, separately approved	N/A
G.4.3	Plug is shaped that insertion into mains socket-outlets or appliance coupler is unlikely		N/A
G.5	**Wound Components**		-
G.5.1	Wire insulation in wound components.....	AC/DC Power Supply is separately certified (See Annex J)	P
G.5.1.2 a)	Two wires in contact inside wound component, angle between 45° and 90°		N/A
G.5.1.2 b)	Construction subject to routine testing		N/A
G.5.2	Endurance test on wound components		N/A
G.5.2.1	General test requirements		N/A
G.5.2.2	Heat run test		N/A
	Time (s) .....:		—
	Temperature (°C) .....:		—
G.5.2.3	Wound Components supplied by mains		N/A
G.5.3	**Transformers**		-
G.5.3.1	Requirements applied (IEC61204-7, IEC61558-1/-2, and/or IEC62368-1).....:	AC/DC Power Supply is separately certified	P
	Position.....:		—
	Method of protection .....:		—
G.5.3.2	Insulation		N/A
	Protection from displacement of windings.....:		—
G.5.3.3	Overload test ..... :	(See appended table B.3)	N/A
G.5.3.3.1	Test conditions		N/A
G.5.3.3.2	Winding Temperatures testing in the unit		N/A
G.5.3.3.3	Winding Temperatures - Alternative test method		N/A
G.5.4	**Motors**		-
G.5.4.1	General requirements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Position .....:		—
G.5.4.2	Test conditions		N/A
G.5.4.3	Running overload test		N/A
G.5.4.4	Locked-rotor overload test		N/A
	Test duration (days) .....:		—
G.5.4.5	Running overload test for d.c. motors in secondary circuits		N/A
G.5.4.5.2	Tested in the unit		N/A
	Electric strength test (V).....:		—
G.5.4.5.3	Tested on the Bench - Alternative test method; test time (h) .....:		N/A
	Electric strength test (V).....:		—
G.5.4.6	Locked-rotor overload test for d.c. motors in secondary circuits		N/A
G.5.4.6.2	Tested in the unit		N/A
	Maximum Temperature .....:		N/A
	Electric strength test (V) .....:		N/A
G.5.4.6.3	Tested on the bench - Alternative test method; test time (h) .....:		N/A
	Electric strength test (V).....:		N/A
G.5.4.7	Motors with capacitors		N/A
G.5.4.8	Three-phase motors		N/A
G.5.4.9	Series motors		N/A
	Operating voltage .....:		—
G.6	**Wire Insulation**		—
G.6.1	General		P
G.6.2	Solvent-based enamel wiring insulation		N/A
G.7	**Mains supply cords**		—
G.7.1	General requirements	Appliance coupler used	N/A
	Type.....:	Not supplied by manufacturer, see user manual .	—
	Rated current (A).....:		—
	Cross-sectional area (mm^2), (AWG)..... :		—
G.7.2	Compliance and test method		N/A
G.7.3	Cord anchorages and strain relief for non-detachable power supply cords	Power supply cords, not supplied by manufacturer.	N/A
G.7.3.2	Cord strain relief		N/A
G.7.3.2.1	Requirements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Strain relief test force (N) .....:		—
G.7.3.2.2	Strain relief mechanism failure		N/A
G.7.3.2.3	Cord sheath or jacket position, distance (mm)....:		—
G.7.3.2.4	Strain relief comprised of polymeric material		N/A
G.7.4	Cord Entry ..... :	(See appended table 5.4.11.1)	N/A
G.7.5	Non-detachable cord bend protection		N/A
G.7.5.1	Requirements		N/A
G.7.5.2	Mass (g) ..... :		—
	Diameter (m) .....:		—
	Temperature (°C) .....:		—
G.7.6	Supply wiring space		N/A
G.7.6.2	Stranded wire		N/A
G.7.6.2.1	Test with 8 mm strand		N/A
G.8	**Varistors**		—
G.8.1	General requirements	AC/DC Power Supply is separately certified	P
G.8.2	Safeguard against shock		N/A
G.8.3	Safeguard against fire		—
G.8.3.2	Varistor overload test .....:	(See appended table B.3)	N/A
G.8.3.3	Temporary overvoltage .....:	(See appended table B.3)	N/A
G.9	**Integrated Circuit (IC) Current Limiters**		—
G.9.1 a)	Manufacturer defines limit at max. 5A.	AC/DC Power Supply is separately certified	P
G.9.1 b)	Limiters do not have manual operator or reset		N/A
G.9.1 c)	Supply source does not exceed 250 VA .....:		—
G.9.1 d)	IC limiter output current (max. 5A) .....:		—
G.9.1 e)	Manufacturers' defined drift .....:		—
G.9.2	Test Program 1		N/A
G.9.3	Test Program 2		N/A
G.9.4	Test Program 3		N/A
G.10	**Resistors**		—
G.10.1	General requirements		N/A
G.10.2	Resistor test		N/A
G.10.3	Test for resistors serving as safeguards between the mains and an external circuit consisting of a coaxial cable		N/A
G.10.3.1	General requirements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.10.3.2	Voltage surge test		N/A
G.10.3.3	Impulse test		N/A
G.11	**Capacitor and RC units**		—
G.11.1	General requirements	AC/DC Power Supply is separately certified	P
G.11.2	Conditioning of capacitors and RC units		N/A
G.11.3	Rules for selecting capacitors		N/A
G.12	**Optocouplers**		P
	Optocouplers comply with IEC 60747-5-5:2007 Spacing or Electric Strength Test (specify option and test results).....:	AC/DC Power Supply separately certified +PA1-SSR1, Solid State Relay, separately approved	P
	Type test voltage Vini .....:		—
	Routine test voltage, Vini,b .....:		—
G.13	**Printed boards**		—
G.13.1	General requirements		P
G.13.2	Uncoated printed boards		P
G.13.3	Coated printed boards		N/A
G.13.4	Insulation between conductors on the same inner surface		P
	Compliance with cemented joint requirements (Specify construction).....:		—
G.13.5	Insulation between conductors on different surfaces		P
	Distance through insulation.....:	(See appended table 5.4.4.5) Reinforced insulation on AC/DC Power Supply separately certified	P
	Number of insulation layers (pcs) .....:		—
G.13.6	Tests on coated printed boards	Not coated PCB	N/A
G.13.6.1	Sample preparation and preliminary inspection		N/A
G.13.6.2a)	Thermal conditioning		N/A
G.13.6.2b)	Electric strength test		N/A
G.13.6.2c)	Abrasion resistance test		N/A
G.14	**Coating on components terminals**		—
G.14.1	Requirements ..... :	(See G.13)	N/A
G.15	**Liquid filled components**		—
G.15.1	General requirements	No such components	N/A
G.15.2	Requirements		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
G.15.3	Compliance and test methods		N/A
G.15.3.1	Hydrostatic pressure test		N/A
G.15.3.2	Creep resistance test		N/A
G.15.3.3	Tubing and fittings compatibility test		N/A
G.15.3.4	Vibration test		N/A
G.15.3.5	Thermal cycling test		N/A
G.15.3.6	Force test		N/A
G.15.4	Compliance		N/A
G.16	**IC including capacitor discharge function (ICX)**		—
a)	Humidity treatment in accordance with sc5.4.8 – 120 hours		N/A
b)	Impulse test using circuit 2 with Uc = to transient voltage .....:		N/A
C1)	Application of ac voltage at 110% of rated voltage for 2.5 minutes		N/A
C2)	Test voltage .....:		—
D1)	10,000 cycles on and off using capacitor with smallest capacitance resistor with largest resistance specified by manufacturer		N/A
D2)	Capacitance .....:		—
D3)	Resistance .....:		—
H	**CRITERIA FOR TELEPHONE RINGING SIGNALS**		N/A
H.1	General	No ringing signals	N/A
H.2	Method A		N/A
H.3	Method B		N/A
H.3.1	Ringing signal		N/A
H.3.1.1	Frequency (Hz) .....:		—
H.3.1.2	Voltage (V) .....:		—
H.3.1.3	Cadence; time (s) and voltage (V) .....:		—
H.3.1.4	Single fault current (mA):.....:		—
H.3.2	Tripping device and monitoring voltage .....:		N/A
H.3.2.1	Conditions for use of a tripping device or a monitoring voltage complied with		N/A
H.3.2.2	Tripping device		N/A
H.3.2.3	Monitoring voltage (V) .....:		—
J	**INSULATED WINDING WIRES FOR USE WITHOUT INTERLEAVED INSULATION**		N/A
	General requirements	(See separate test report)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
K	**SAFETY INTERLOCKS**		—
K.1	General requirements	No such elements	N/A
K.2	Components of safety interlock safeguard mechanism	(See Annex G)	N/A
K.3	Inadvertent change of operating mode		N/A
K.4	Interlock safeguard override		N/A
K.5	Fail-safe		N/A
	Compliance .....:	(See appended table B.4)	N/A
K.6	Mechanically operated safety interlocks		N/A
K.6.1	Endurance requirement		N/A
K.6.2	Compliance and Test method .....:		N/A
K.7	Interlock circuit isolation		N/A
K.7.1	Separation distance for contact gaps & interlock circuit elements (type and circuit location) .....:		N/A
K.7.2	Overload test, Current (A).....:		N/A
K.7.3	Endurance test		N/A
K.7.4	Electric strength test .....:	(See appended table 5.4.11)	N/A
L	**DISCONNECT DEVICES**		P
L.1	General requirements		P
L.2	Permanently connected equipment		N/A
L.3	Parts that remain energized		N/A
L.4	Single phase equipment		P
L.5	Three-phase equipment		N/A
L.6	Switches as disconnect devices		P
L.7	Plugs as disconnect devices	See in the user manual	P
L.8	Multiple power sources		N/A
M	**EQUIPMENT CONTAINING BATTERIES AND THEIR PROTECTION CIRCUITS**		---
M.1	General requirements	No batteries and their protection circuits in the EUT	N/A
M.2	Safety of batteries and their cells		N/A
M.2.1	Requirements		N/A
M.2.2	Compliance and test method (identify method) .. :		N/A
M.3	Protection circuits		N/A
M.3.1	Requirements		N/A
M.3.2	Tests		N/A
	- Overcharging of a rechargeable battery		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- Unintentional charging of a non-rechargeable battery		N/A
	- Reverse charging of a rechargeable battery		N/A
	- Excessive discharging rate for any battery		N/A
M.3.3	Compliance .....:	(See appended Tables and Annex M and M.4)	N/A
M.4	Additional safeguards for equipment containing secondary lithium battery		N/A
M.4.1	General		N/A
M.4.2	Charging safeguards		N/A
M.4.2.1	Charging operating limits		N/A
M.4.2.2a)	Charging voltage, current and temperature .....:	(See Table M.4)	—
M.4.2.2 b)	Single faults in charging circuitry .....:	(See Annex B.4)	—
M.4.3	Fire Enclosure		N/A
M.4.4	Endurance of equipment containing a secondary lithium battery		N/A
M.4.4.2	Preparation		N/A
M.4.4.3	Drop and charge/discharge function tests		N/A
	Drop		N/A
	Charge		N/A
	Discharge		N/A
M.4.4.4	Charge-discharge cycle test		N/A
M.4.4.5	Result of charge-discharge cycle test		N/A
M.5	Risk of burn due to short circuit during carrying		N/A
M.5.1	Requirement		N/A
M.5.2	Compliance and Test Method (Test of P.2.3)		N/A
M.6	Prevention of short circuits and protection from other effects of electric current		N/A
M.6.1	Short circuits		N/A
M.6.1.1	General requirements		N/A
M.6.1.2	Test method to simulate an internal fault		N/A
M.6.1.3	Compliance (Specify M.6.1.2 or alternative method) .....:		N/A
M.6.2	Leakage current (mA) .....:		N/A
M.7	Risk of explosion from lead acid and NiCd batteries		N/A
M.7.1	Ventilation preventing explosive gas concentration		N/A
M.7.2	Compliance and test method		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
M.8	Protection against internal ignition from external spark sources of lead acid batteries		N/A
M.8.1	General requirements		N/A
M.8.2	Test method		N/A
M.8.2.1	General requirements		N/A
M.8.2.2	Estimation of hypothetical volume *Vz* (m^3/s)..... :		—
M.8.2.3	Correction factors..... :		—
M.8.2.4	Calculation of distance *d* (mm) ..... :		—
M.9	Preventing electrolyte spillage		N/A
M.9.1	Protection from electrolyte spillage		N/A
M.9.2	Tray for preventing electrolyte spillage		N/A
M.10	Instructions to prevent reasonably foreseeable misuse (Determination of compliance: inspection, data review; or abnormal testing) ..... :		N/A
N	**ELECTROCHEMICAL POTENTIALS**		P
	Metal(s) used ..... :	considered	—
O	**MEASUREMENT OF CREEPAGE DISTANCES AND CLEARANCES**		P
	Figures O.1 to O.20 of this Annex applied..... :		—
P	**SAFEGUARDS AGAINST ENTRY OF FOREIGN OBJECTS AND SPILLAGE OF INTERNAL LIQUIDS**		P
P.1	General requirements		P
P.2.2	Safeguards against entry of foreign object		P
	Location and Dimensions (mm) ..... :	No openings on the top and side	—
P.2.3	Safeguard against the consequences of entry of foreign object		N/A
P.2.3.1	Safeguards against the entry of a foreign object		N/A
	Openings in transportable equipment		N/A
	Transportable equipment with metalized plastic parts ..... :	Fixed equipment	N/A
P.2.3.2	Openings in transportable equipment in relation to metallized parts of a barrier or enclosure (identification of supplementary safeguard) ..... :		N/A
P.3	Safeguards against spillage of internal liquids	No internal liquids	N/A
P.3.1	General requirements		N/A
P.3.2	Determination of spillage consequences		N/A
P.3.3	Spillage safeguards		N/A
P.3.4	Safeguards effectiveness		N/A
P.4	Metallized coatings and adhesive securing parts		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
P.4.2 a)	Conditioning testing		N/A
	Tc (°C) ..... :		—
	Tr (°C) ..... :		—
	Ta (°C) ..... :		—
P.4.2 b)	Abrasion testing ..... :	(See G.13.6.2)	N/A
P.4.2 c)	Mechanical strength testing ..... :	(See Annex T)	N/A
Q	**CIRCUITS INTENDED FOR INTERCONNECTION WITH BUILDING WIRING**		N/A
Q.1	Limited power sources		N/A
Q.1.1 a)	Inherently limited output		N/A
Q.1.1 b)	Impedance limited output		N/A
	- Regulating network limited output under normal operating and simulated single fault condition		N/A
Q.1.1 c)	Overcurrent protective device limited output		N/A
Q.1.1 d)	IC current limiter complying with G.9		N/A
Q.1.2	Compliance and test method		N/A
Q.2	Test for external circuits – paired conductor cable		N/A
	Maximum output current (A) ..... :		—
	Current limiting method ..... :		—
R	**LIMITED SHORT CIRCUIT TEST**		P
R.1	General requirements		P
R.2	Determination of the overcurrent protective device and circuit		P
R.3	Test method Supply voltage (V) and short-circuit current (A)). ..... :	240V;10A (for prospective short-circuit current, see user manual)	P
S	**TESTS FOR RESISTANCE TO HEAT AND FIRE**		P
S.1	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material ..... :	Metal enclosure	—
	Wall thickness (mm) ..... :		—
	Conditioning (°C) ..... :		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	- Material not consumed completely		N/A
	- Material extinguishes within 30s		N/A
	- No burning of layer or wrapping tissue		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
S.2	Flammability test for fire enclosure and fire barrier integrity		N/A
	Samples, material .....:		—
	Wall thickness (mm).....:		—
	Conditioning (°C).....:		—
	Test flame according to IEC 60695-11-5 with conditions as set out		N/A
	Test specimen does not show any additional hole		N/A
S.3	Flammability test for the bottom of a fire enclosure	Metal enclosure	N/A
	Samples, material .....:		—
	Wall thickness (mm).....:		—
	Cheesecloth did not ignite		N/A
S.4	Flammability classification of materials		N/A
S.5	Flammability test for fire enclosures and fire barrier materials of equipment where the steady state power does not exceed 4 000 W		N/A
	Samples, material .....:		—
	Wall thickness (mm).....:		—
	Conditioning (test condition), (°C).....:		—
	Test flame according to IEC 60695-11-20 with conditions as set out		N/A
	After every test specimen was not consumed completely		N/A
	After fifth flame application, flame extinguished within 1 min		N/A
T	**MECHANICAL STRENGTH TESTS**		N/A
T.1	General requirements		P
T.2	Steady force test, 10 N .....:	(See appended table T.2)	N/A
T.3	Steady force test, 30 N .....:	(See appended table T3)	N/A
T.4	Steady force test, 100 N .....:	(See appended table T4)	N/A
T.5	Steady force test, 250 N .....:	(See appended table T5)	P
T.6	Enclosure impact test	(See appended table T6)	P
	Fall test		P
	Swing test		P
T.7	Drop test .....:	(See appended table T7) Fixed equipment	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
T.8	Stress relief test .....:	(See appended table T8) Metal enclosure	N/A
T.9	Impact Test (glass)	On led panel Monolithic glass.	P
T.9.1	General requirements		P
T.9.2	Impact test and compliance		P
	Impact energy (J).....:	2	—
	Height (m) .....:	0,408	—
T.10	Glass fragmentation test .....:	In according to sub-clause 4.4.4.9, not expel pieces of glass.	N/A
T.11	Test for telescoping or rod antennas		N/A
	Torque value (Nm) .....:		—
U	**MECHANICAL STRENGTH OF CATHODE RAY TUBES (CRT) AND PROTECTION AGAINST THE EFECTS OF IMPLOSION**		N/A
U.1	General requirements		N/A
U.2	Compliance and test method for non-intrinsically protected CRTs		N/A
U.3	Protective Screen.....:	(See Annex T)	N/A
V	**DETERMINATION OF ACCESSIBLE PARTS (FINGERS, PROBES AND WEDGES)**		P
V.1	Accessible parts of equipment		P
V.2	Accessible part criterion		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

4.1.2	TABLE: List of critical components				P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity[1]
AC/DC PWS	MEAN WELL	UHP-200 -24	Input 100-240VAC 2,6A 50/60Hz Output 24Vdc 8,4A Ta 70°C	UL60950-1,TUV EN 62368-1:2014+A11	UL (E183223) TÜV Rheinland R 50445981
Mains switch and CIRCUIT BREAKER 12002031	Gewiss	GW90046 MTC45	230V 2P 10A 4500A 6kA 3 -25°C to 60°C	EN 60898, EN 60947-2	IMQ
DIN Rail Fuse holder +PA1-X2	Weidmüller	SAK ASK 1/EN	4mmq 6.3A 500V UL94-V2 -50° to 100°C	EN 60947-7-3	CE, CSA, EAC ,UR (E60693)
Fuse F1 +PA1-A2	Italweber	5X20 Cod.0115010	T 10AL 250V 35A	CEI 32-6/1, CEI 32-6/2, IEC 60127-1, IEC 60127-2;	VDE,UL
Fuse F1 +PA1-X2	Italweber	5X20 Cod.11061007	T 3,15AL 250V 35A	CEI 32-6/1, CEI 32-6/2, IEC 60127-1, IEC 60127-2;	VDE,UL
Gas piston (#1) 13018293	Stabilus Lift-o-Mat	5075DQ	Corsa=150mm, L.tot.=375,5mm, Stelo Ø6mm. 100N	EN/IEC 62368-1	Tested in the appliance
Mains cable and Earthed cable yellow/green	BALDASSARI CAVI	N07G9-K	2,5mm2 450/750 V -30°C to 90°C	CEI 20-38 - CEI UNEL 35368 CEI EN 60332-1-2 CEI 20-22 II CEI EN 50267-2-2 CEI EN 61034-2 CEI EN 20-37/4-0 2014/35/UE 2011/65/CE	IMQ CA01.00597
Metal enclosure	Aesys	Drawing nr. 73 232 4 01	Powder painted Aluminium case Thickness 3mm	EN/IEC 62368-1	Tested in the appliance
Din Rail Mains Screw terminal Din Rail hearted Screw terminal	Wago	2002-1301	2,5mmq 32A 800V	CSA C22.2No158-10, EN 60947-7-1/2/3, EN50014, EN 50019	CE, CSA,KEMA, DNV,UR (E45172) DEKRA NTR NL-7585
TFT display	AUO	P320HVN03.0	TFT 32”	UL 60950-1, IEC 60950-1, EN 60950-1;ANSI C63.4,EN55022	TUV, UL
Front Glass	Aesys	Drawing nr. 73 232 1 01	Laminated glass with IR film (3 + 0.38 pvb + 3 mm and 0.76 filter ir)	EN/IEC 62368-1	Tested in the appliance

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

PCB • CPU BOARD 1629 • PACE MIO - 5251 • BOARD TTS-EM-HD3-E • BOARD 1718 • BOARD 1814	TAIWAN UNION TC	TU-662, TU-668, TU752, TU-768, TU-862HF, TU-865	Min V-1, 105 ºC thickness 1,6mm	UL796 EN 60695-2-11	UR (E189572)
(alternative)	BASELECTRON SRL	IT 180A ITEQ	V-0, 175 ºC thickness 1,6mm	UL796	UR (E146514)
(alternative)	FINELINE	IT 180A ITEQ	V-0, 175 ºC thickness 1,6mm	UL796	UR (E235638, E74742)
Gasket	Sonderhoff	FERMAPOR K31-A-9160-VP4 / K31-B-81	2-component PUR foam FERMAPOR K31-A-9160-VP4 with K31-B-81 in a gravimetric mixing ratio 3.5 : 1	EN/IEC 62368-1	Tested in the appliance
Secondary circuit cable	LAPPGROUP	H05Z-K	300/500V 90°C Breakdown voltage 2000Vac	VDE 0298-4 EN 50565-1/ VDE 0298-565-1	HAR EAC
Secondary circuit cable Alternative	General cavi s.p.a.	N07G9-K	450/750V 90°C Breakdown voltage 3000Vac	CEI 20-38 CEI UNEL 35368 CEI 20-22 II CEI EN 60332-1-2 CEI EN 50267-2-1 CEI EN 61034-2 CEI 20-37/4-0	IMQ
Mains filter with appliance inlet and Fuse U1	SCHAFFNER	FN9222S-3-07	250V 3A 50/60Hz UL94V-0 25/085/21	IEC 60939, UL 1283, CSA C22.2 No.8	UL, cUR, ENEC10 VDE (ENEC 10) 138491
Fuse U1	Italweber	Cod.0114005 T5A 250V	5x20mm, Standard, T5A, 250V, Ik=35A	CEI 32-6/1, CEI 32-6/2, IEC 60127-1, IEC 60127-2;	VDE,UL
Solid-State Relay +PA1-SSR1	CRYDOM	CX240D5	Signal 3-15VDC; 240VAC,5A,DC Ta 80°C	EN 60950-1	cUR (E116950), CSA,VDE Nr.70938
Terminal Relay	CRYDOM	DRA1-CX240D5	CX240D5 Din rail mount	IEC 62314, CE EN 60950, IEC/EN 60695-2-10 and IEC/EN 60695-2-11	CE, VDE, SA
Max Flow 12006124 (x2)	MaxFlow	MFL11025	Ø100,5x25,5P 24V Tacho/PWM IP67	EN 55032, EN55035,Direttiva EMC2014/30/EU, UL94	CE, UL
Mains appliance inlet PA1-CN1	Harting	Harting	HARTING PushPull V4 WDF 250V/16A 3p Crim	IEC 61076-3, UL 1977 ECTB2.E 102079	UL,CSA

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Themal protection	UCHIY, RTC	Uchiya U12 ½ Disk type (U-A series	110°C	File No. UL E50124, UL-873. File No. UL52703 – UL-547, EN60730-1,EN60730-2-9, EN60730-2-2	VDE,UR, UL
(alternative)	Asahikeiki	½ Disk type (US 622)	110°C	File number E52529, C-UL, VDE file 40026861	VDE,UR
Anti-condensation Heather E1 73 232 152	HolRoyd components Ltd.	Silicone rubber	61W –60°C to 200°C	UL 499;CSA C22.2 No.72-10 DIN EN 60335-1 (VDE 0700-1):2012-10; EN 60335-1:2012 DIN EN 60335-1 Ber.1 (VDE 0700-1 Ber.1):2014-04; EN 60335-1:2012/AC:2014 EN 60335-1:2012/A11:2014 DIN EN 60335-1/A13 (VDE 0700-1/A13):2018-07; EN 60335-1:2012/A13:2017	VDE 40049634 UL (E173155)
Anti-condensation Heather E2;E3 73 232 154	HolRoyd components Ltd.	Silicone rubber	50W –60°C to 200°C	UL 499;CSA C22.2 No.72-10 DIN EN 60335-1 (VDE 0700-1):2012-10; EN 60335-1:2012 DIN EN 60335-1 Ber.1 (VDE 0700-1 Ber.1):2014-04; EN 60335-1:2012/AC:2014 EN 60335-1:2012/A11:2014 DIN EN 60335-1/A13 (VDE 0700-1/A13):2018-07; EN 60335-1:2012/A13:2017	VDE,UL Tested in the appliance
Anti-condensation Heather E4 73 232 151	HolRoyd components Ltd.	Silicone rubber	139W –60°C to 200°C	UL 499;CSA C22.2 No.72-10 DIN EN 60335-1 (VDE 0700-1):2012-10; EN 60335-1:2012 DIN EN 60335-1 Ber.1 (VDE 0700-1 Ber.1):2014-04; EN 60335-1:2012/AC:2014 EN 60335-1:2012/A11:2014 DIN EN 60335-1/A13 (VDE 0700-1/A13):2018-07; EN 60335-1:2012/A13:2017	VDE,UL Tested in the appliance

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Fuse holder heather Cod. Aesys 12004513	Wago	2002-1711(IT)	5 x 20 mm	EN60079, C22,2, NE60947,UL1059,	UL, UR, CCA, ABS, DNV GL, CSA, KEMA/KEUR, IECEx,,AEx, ATEX
Fuse Terminal heather Cod. Aesys 12004513	Wago	2002-1711(IT)	5 x 20 mm	EN60079, C22,2, NE60947,UL1059,	UL, UR, CCA, ABS, DNV GL, CSA, KEMA/KEUR, IECEx,,AEx, ATEX

Supplementary information:

TRI refuses any responsibility about information supplied by the customer contained in this test report

[1)] Provided evidence ensures the agreed level of compliance. See OD-CB2039.

[2)] Description line content is optional. Main line description needs to clearly detail the component used for testing

4.8.4, 4.8.5	TABLE: Lithium coin/button cell batteries mechanical tests	N/A

(The following mechanical tests are conducted in the sequence noted.)

4.8.4.2	TABLE: Stress Relief test	—

Part	Material	Oven Temperature (°C)	Comments

4.8.4.3	TABLE: Battery replacement test	—
Battery part no. .....:		—

Battery Installation/withdrawal	Battery Installation/Removal Cycle	Comments
	1	N/A
	2	N/A
	3	N/A
	4	N/A
	5	N/A
	6	N/A
	8	N/A
	9	N/A
	10	N/A

4.8.4.4	TABLE: Drop test	—

Impact Area	Drop Distance	Drop No.	Observations
		1	N/A
			N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

4.8.4, 4.8.5	**TABLE: Lithium coin/button cell batteries mechanical tests**	N/A

(The following mechanical tests are conducted in the sequence noted.)

			N/A

4.8.4.5	**TABLE: Impact**	—

Impacts per surface	Surface tested	Impact energy (Nm)	Comments
			N/A

4.8.4.6	**TABLE: Crush test**	—

Test position	Surface tested	Crushing Force (N)	Duration force applied (s)
			N/A

Supplementary information: No Batteries used

4.8.5	**TABLE: Lithium coin/button cell batteries mechanical test result**	N/A

Test position	Surface tested	Force (N)	Duration force applied (s)

Supplementary information:

5.2	**Table: Classification of electrical energy sources**	P

5.2.2.2 – Steady State Voltage and Current conditions

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				U (Vrms or Vpk)	I (Apk or Arms)	Hz	
1	Mains supply	Mains	Normal	240 Vrms	1,5Arms	50	ES3
			Abnormal	<240 Vrms	< 10,7A	50	
			Single fault – SC/OC	<240 Vrms	< 10,7A	50	
2	DC supply	EUT	Normal	24Vpk	8,4A	DC	ES1
			Abnormal	<24Vpk	11,8A	DC	
			Single fault – SC/OC	<24Vpk	11,8A	DC	

5.2.2.3 - Capacitance Limits

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters		ES Class
				Capacitance, nF	Upk (V)	
1			Normal			N/A
			Abnormal			
			Single fault – SC/OC			

5.2.2.4 - Single Pulses

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Duration (ms)	Upk (V)	Ipk (mA)	
1			Normal				N/A
			Abnormal				
			Single fault – SC/OC				

5.2.2.5 - Repetitive Pulses

No.	Supply Voltage	Location (e.g. circuit designation)	Test conditions	Parameters			ES Class
				Off time (ms)	Upk (V)	Ipk (mA)	
1			Normal				N/A
			Abnormal				
			Single fault – SC/OC				

Test Conditions:

Normal –

Abnormal -

Supplementary information: SC=Short Circuit, OC=Short Circuit

5.4.1.4, 6.3.2, 9.0, B.2.6	TABLE: Temperature measurements					P
	Supply voltage (V) ..... :	264				—
	Ambient T_{min} (°C) ..... :	25				—
	Ambient T_{max} (°C) ..... :	25				—
	Tma (°C) ..... :	50				—
Maximum measured temperature T of part/at:		T (°C)				Allowed T_{max} (°C)
Appliance inlet +PA1-CN1		25,3				60
Internal mains cable		42,9				65

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Ambient Miniature Circuit Breaker C10 (Ta 60°C)	29,9				35
+PA1-U1 Mains filter FN9222S (body)	43,0				60
+PA1-SSR1 Solid State Relay CRYDOM CX240D5 (Ta 80°C)	33,1				55
Fuse terminals +PA1-X2	47,6				55
PCB board TTS-EM-120 (105°C)	43,4				80
Ambient AC/DC Power Supply 24VDC (Ta 70°C)	43,0				45
Mains switch (Ta 60°C)	30,0				35
Metal enclosure (front side)	27,7				70*
Internal metal parts cover heather (near symbol IEC 60417-5041 Hot surface)	48,4**				175
Glass enclosure (front side)	30,9				80*

Supplementary information:
Tma is declared by manufacturer 50°C.
The values marked with* was considered to Tamb. 25°C. (See Note 2).
The worst case of the temperature result was considered.
** the resistance working when external Tamb (Tma) is lower than +5°C

Temperature T of winding:	t_1 (°C)	R_1 (Ω)	t_2 (°C)	R_2 (Ω)	T (°C)	Allowed T_{max} (°C)	Insulation class
N/A							

Supplementary information:
Note 1: Tma should be considered as directed by appliable requirement.
Note 2: Tma is not included in assessment of Touch Temperatures (Clause 9)

5.4.1.10.2	TABLE: Vicat softening temperature of thermoplastics		N/A
Penetration (mm)..... :			—
Object/ Part No./Material	Manufacturer/trademark	T softening (°C)	

supplementary information: Enclosure is metal

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

5.4.1.10.3	TABLE: Ball pressure test of thermoplastics		P
Allowed impression diameter (mm) ..... :		≤ 2 mm	—
Object/Part No./Material	Manufacturer/trademark	Test temperature (°C)	Impression diameter (mm)
Mains Terminals	See table 4.1.2	125	Separately certified
Supplementary information:			

5.4.2.2, 5.4.2.4 and 5.4.3	TABLE: Minimum Clearances/Creepage distance						P
Clearance (cl) and creepage distance (cr) at/of/between:	Up (V)	U r.m.s. (V)	Frequency (kHz)[1]	Required cl (mm)	cl (mm)[2]	Required[3] cr (mm)	cr (mm)
EUT (functional), before mains fuse C10	339	240	(50Hz)	1,5	>1,95	2,5	>3,2
EUT (basic)	339	240	(50Hz)	1,5	>1,95	2,5	>3,2
EUT (reinforced)	339	240	(50Hz)	3,0	>3,9	5,0	>6,5

Supplementary information: AC/DC Power Supply is separately certified.

Note 1: Only for frequency above 30 kHz
Note 2: See table 5.4.2.4 if this is based on electric strength test
Note 3: Provide Material Group

5.4.2.3	TABLE: Minimum Clearances distances using required withstand voltage		P
	Overvoltage Category (OV):		2500
	Pollution Degree:		2
Clearance distanced between:	Required withstand voltage	Required cl (mm)	Measured cl (mm)
EUT (functional), before Circuit Breaker	2500	1,5	>1,95
EUT (basic)	2500	1,5	>1,95
EUT (reinforced)	2500	3,0	>3,90
Supplementary information: AC/DC POWER SUPPLY and Heating RESISTANCES E1-E4 are separately certified.			

5.4.2.4	TABLE: Clearances based on electric strength test		N/A
Test voltage applied between:	Required cl	Test voltage (kV)	Breakdown

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

	(mm)	peak/ r.m.s. / d.c.	Yes / No
Supplementary information:			

5.4.4.2, 5.4.4.5 c) 5.4.4.9	TABLE: Distance through insulation measurements				P
Distance through insulation di at/of:	Peak voltage (V)	Frequency (kHz)	Material	Required DTI (mm)	DTI (mm)
EUT	325	dc	FR4	*	
AC/DC Power Supply (reinforced)	325	50	-	0,4	separately certified.
Supplementary information: Limit of ES3; AC/DC Power Supply, separately certified. *Limit of ES1, no requirements.					

5.4.9	TABLE: Electric strength tests			P
Test voltage applied between:		Voltage shape (AC, DC)	Test voltage (V)	Breakdown Yes / No
Functional:				
EUT, mains F/N (before fuse)		DC	2,5KVpk	No
Basic/supplementary:				
EUT, Mains circuit to earthed circuits/parts.		DC	2,5KVpk	No
Reinforced:				
EUT, Mains circuit to accessible unearthed circuits/parts.		DC	4,0KVpk	No
Routine Tests:				N/A
Supplementary information: Internal AC/DC power supply with reinforced insulation, separately approved. Secondary circuits are connected to earthed circuit.				

5.5.2.2	TABLE: Stored discharge on capacitors	P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Supply Voltage (V), Hz	Test Location	Operating Condition (N, S)	Switch position On or off	Measured Voltage (after 2 seconds)	ES Classification
240V; 50Hz	Mains plug	N	-	5Vrms	ES1

Supplementary information:
X-capacitors installed for testing are:
☐ bleeding resistor rating:
☐ ICX:
Notes:
A. Test Location:
Phase to Neutral; Phase to Phase; Phase to Earth; and/or Neutral to Earth
B. Operating condition abbreviations:
N – Normal operating condition (e.g., normal operation, or open fuse); S –Single fault condition

5.6.6.2	TABLE: Resistance of protective conductors and terminations			P
Accessible part	Test current (A)	Duration (min)	Voltage drop (V)	Resistance (Ω)
Earthed enclosure	32	120s	2,02	0,03

Supplementary information:

5.7.2.2, 5.7.4	TABLE: Earthed accessible conductive part	P
Supply voltage .....:	253	—
Location	Test conditions specified in 6.1 of IEC 60990 or Fault Condition No in IEC 60990 clause 6.2.2.1 through 6.2.2.8, except for 6.2.2.7	Touch current (mA)
	1	0,6
	2*	
	3	
	4	
	5	
	6	
	8	

Supplementary Information:
AC/DC Power Supply is separately certified
Notes:

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

[1] Supply voltage is the anticipated maximum Touch Voltage
[2] Earthed neutral conductor [Voltage differences less than 1% or more]
[3] Specify method used for measurement as described in IEC 60990 sub-clause 4.3
[4] IEC60990, sub-clause 6.2.2.7, Fault 7 not applicable.
[5] (*) IEC60990, sub-clause 6.2.2.2 is not applicable if switch or disconnect device (e.g., appliance coupler) provided.

6.2.2	Table: Electrical power sources (PS) measurements for classification				P
Source	Description	Measurement	Max Power after 3 s	Max Power after 5 s*)	PS Classification
A	AC/DC Power Supply Mains circuit	Power (W) :	>300	>300	PS3
		V_A (V) :	240	240	
		I_A (A) :	10	10	
B	EUT DC connector	Power (W) :	284	284	PS3
		V_A (V) :	24	24	
		I_A (A) :	11,8	11,8	
C	-	Power (W) :	-	-	-
		V_A (V) :	-	-	
		I_A (A) :	-	-	
D	-	Power (W) :	-	-	-
		V_A (V) :	-	-	
		I_A (A) :	-	-	

Supplementary Information: AC/DC Power Supply is separately certified
(*) Measurement taken only when limits at 3 seconds exceed PS1 limits

6.2.3.1	Table: Determination of Potential Ignition Sources (Arcing PIS)			N/A
Location	Open circuit voltage After 3 s (Vp)	Measured r.m.s current (Irms)	Calculated value (V_p x I_{rms})	Arcing PIS? Yes / No
AC/DC Power Supply Mains circuit				

Supplementary information: AC/DC Power Supply is separately certified
An Arcing PIS requires a minimum of 50 V (peak) a.c. or d.c. An Arcing PIS is established when the product of the open circuit voltage (V_p) and normal operating condition rms current (I_{rms}) is greater than 15.

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

6.2.3.2	Table: Determination of Potential Ignition Sources (Resistive PIS)				P
Circuit Location (x-y)	Operating Condition (Normal / Describe Single Fault)	Measured wattage or VA During first 30 s (W / VA)	Measured wattage or VA After 30 s (W / VA)	Protective Circuit, Regulator, or PTC Operated? Yes / Separately certified (Comment)	Resistive PIS? Yes/No
EUT, mains	Normal	>100 W	>100 W	fuse	Yes
AC/DC Power Supply, Output 24VDC 8,4A	Normal	Max 284 W	Max 284 W	Separately certified	Yes

Supplementary Information:

A combination of voltmeter, VA and ammeter IA may be used instead of a wattmeter.

If a separate voltmeter and ammeter are used, the product of (VA x IA) is used to determine Resistive PIS classification.

A Resistive PIS: (a) dissipates more than 15 W, measured after 30 s of normal operation, or (b) under single fault conditions has either a power exceeding 100 W measured immediately after the introduction of the fault if electronic circuits, regulators or PTC devices are used, or has an available power exceeding 15 W measured 30 s after introduction of the fault.

8.5.5	TABLE: High Pressure Lamp	N/A
Description	Values	Energy Source Classification
Lamp type.....:		—
Manufacturer .....:		—
Cat no. .....:		—
Pressure (cold) (MPa).....:		MS_
Pressure (operating) (MPa) .....:		MS_
Operating time (minutes) .....:		—
Explosion method .....:		—
Max particle length escaping enclosure (mm) .:		MS_
Max particle length beyond 1 m (mm).....:		MS_
Overall result .....:		

Supplementary information:

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

B.2.5	TABLE: Input test						P
U (V)	I (mA)	I rated (A)	P (W)	P rated (W)	Fuse No	I fuse (A)	Condition/status
240, 50Hz	400	1,6	---	---	Fuse U1 on mains filter	5	Without heating resistance E1 to E4 operating
240, 50Hz	1600	1,6	---	---	Fuse U1 on mains filter	5	With heating resistance E1 to E4 operating
220, 60Hz	400	1,6	---	---	Fuse U1 on mains filter	5	Without heating resistance E1 to E4 operating
220, 60Hz	1500	1,6	---	---	Fuse U1 on mains filter	5	With heating resistance E1 to E4 operating
Supplementary information: also miniature Circuit Breaker – GW90046 - 2P – MTC45 – C10 used							

B.3	TABLE: Abnormal operating condition tests								P
Ambient temperature (°C) .....:				25					—
Power source for EUT: Manufacturer, model/type, output rating ..:				Supply mains					—
Component No.	Abnormal Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation	
Ethernet 10/100 connections	Short circuit	240	10 min	Fuse U1 on mains filter	5	Enclosure	27	No hazard	
Contact Solid Stated Relay	Short circuit/ open circuit	240	10 min	+PA1 -X2, FT1	3,15	Enclosure	27	No hazard	
Heating resistance E1 to E4	Continuous	240	60 min	+PA1 -X2, FT1	3,15	Enclosure	27	No hazard	
Fan Ventilation closed	Locked	240	60 min	Fuse U1 on mains filter	5	Enclosure	27	No hazard	
Supplementary information: Fuse U1, T 5A 250V INTO used Test table is provided to record abnormal and fault conditions for all applicable energy sources including Thermal burn injury. Column “Abnormal/Fault.” Specify if test condition by indicating “Abnormal” then the condition for a Clause B.3 test or “Single Fault” then the condition for Clause B.4.									

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

B.4	TABLE: Fault condition tests							P
Ambient temperature (°C) .....:			25					—
Power source for EUT: Manufacturer, model/type, output rating .:			Supply mains					—
Component No.	Fault Condition	Supply voltage, (V)	Test time (ms)	Fuse no.	Fuse current, (A)	T-couple	Temp. (°C)	Observation
Creepage distances on pcb	Short circuit	24dc	60 sec	See note	10	Enclosure	27	Class V1 PCB required ; Class V0 used). No hazard, no risk of fire.
Clearance distances on pcb	Short circuit	24dc	60 sec	See note	10	Enclosure	27	Class V1 PCB required ; Class V0 used). No hazard, no risk of fire.
SMD components mounted on class V-0 boards	Any	24dc	60 sec	See note	10	Enclosure	27	Components mounted on material of Class V-0 Metal and glass enclosure and no openings. No hazard, no risk of fire.
Supplementary information: AC/DC power supply separately approved								

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Annex M	**TABLE: Batteries**									N/A
The tests of Annex M are applicable only when appropriate battery data is not available										-
Is it possible to install the battery in a reverse polarity position?..... :										-
	Non-rechargeable batteries			Rechargeable batteries						
	Discharging		Un-intentional charging	Charging		Discharging		Reversed charging		
	Meas. current	Manuf. Specs.		Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	Meas. current	Manuf. Specs.	
Max. current during normal condition	-	-	-	-	-	-	-	-	-	
Max. current during fault condition	-	-	-	-	-	-	-	-	-	
Test results:										Verdict
- Chemical leaks										
- Explosion of the battery										
- Emission of flame or expulsion of molten metal										
- Electric strength tests of equipment after completion of tests										
Supplementary information: Not batteries used										

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Annex M.4	**Table: Additional safeguards for equipment containing secondary lithium batteries**	N/A

Battery/Cell No.	Test conditions	Measurements			Observation
		U	I (A)	Temp (C)	
	Normal				
	Abnormal				
	Single fault –SC/OC				
	Normal				
	Abnormal				
	Single fault – SC/OC				

Supplementary Information:
Not a lithium battery

Battery identification	Charging at T_{lowest} (°C)	Observation	Charging at $T_{highest}$ (°C)	Observation

Supplementary Information:

Annex Q.1	**TABLE: Circuits intended for interconnection with building wiring (LPS)**	N/A

Note: Measured UOC (V) with all load circuits disconnected:

Output Circuit	Components	U_{oc} (V)	I_{sc} (A)		S (VA)	
			Meas.	Limit	Meas.	Limit

Supplementary Information:
SC=Short circuit, OC=Open circuit

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

T.2, T.3, T.4, T.5	TABLE: Steady force test				P
Part/Location	Material	Thickness (mm)	Force (N)	Test Duration (sec)	Observation
EUT, (External enclosure)	See table 4.1.2	-	250	5	No hazard
Supplementary information: Metal and glass enclosure					

T.6, T.9	TABLE: Impact tests			P
Part/Location	Material	Thickness (mm)	Vertical distance (mm)	Observation
EUT (External metal enclosure)	See table 4.1.2	3mm	1300	No hazard
EUT (glass enclosure)	See table 4.1.2	3+0,38pvb+3mm	408	No cracks observed
Supplementary information:				

T.7	TABLE: Drop tests				N/A
Supplementary information: Fixed appliance					

T.8	TABLE: Stress relief test				N/A
Part/Location	Material	Thickness (mm)	Oven Temperature (°C)	Duration (h)	Observation
Supplementary information: EUT with screws and metal enclosure					

Attachment I:

ATTACHMENT TO TEST REPORT

IEC 62368-1
EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES
(Audio/video, information and communication technology equipment - Part 1: Safety requirements)

Differences according to ..... : EN 62368-1:2014+A11:2017

Attachment Form No. ..... : EU_GD_IEC62368_1B_II

Attachment Originator ..... : Nemko AS

Master Attachment ..... : Date 2017-09-22

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	CENELEC COMMON MODIFICATIONS (EN)	
	Clauses, subclauses, notes, tables, figures and annexes which are additional to those in IEC 62368-1:2014 are prefixed "Z".	P
CONTENTS	**Add** the following annexes: Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations Annex ZD (informative) IEC and CENELEC code designations for flexible cords	P
	Delete all the "country" notes in the reference document (IEC 62368-1:2014) according to the following list:	P
	For special national conditions, see Annex ZB.	P
1	**Add** the following note: NOTE Z1 The use of certain substances in electrical and electronic equipment is restricted within the EU: see Directive 2011/65/EU.	P

0.2.1	Note	1	Note 3	4.1.15	Note
4.7.3	Note 1 and 2	5.2.2.2	Note	5.4.2.3.2.2 Table 13	Note c
5.4.2.3.2.4	Note 1 and 3	5.4.2.5	Note 2	5.4.5.1	Note
5.5.2.1	Note	5.5.6	Note	5.6.4.2.1	Note 2 and 3
5.7.5	Note	5.7.6.1	Note 1 and 2	10.2.1 Table 39	Note 2, 3 and 4
10.5.3	Note 2	10.6.2.1	Note 3	F.3.3.6	Note 3

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.Z1	**Add** the following new subclause after 4.9: To protect against excessive current, short-circuits and earth faults in circuits connected to an a.c. **mains**, protective devices shall be included either as integral parts of the equipment or as parts of the building installation, subject to the following, a), b) and c): a) except as detailed in b) and c), protective devices necessary to comply with the requirements of B.3.1 and B.4 shall be included as parts of the equipment; b) for components in series with the mains input to the equipment such as the supply cord, appliance coupler, r.f.i. filter and switch, short-circuit and earth fault protection may be provided by protective devices in the building installation; c) it is permitted for **pluggable equipment type B or permanently connected equipment**, to rely on dedicated overcurrent and short-circuit protection in the building installation, provided that the means of protection, e.g. fuses or circuit breakers, is fully specified in the installation instructions. If reliance is placed on protection in the building installation, the installation instructions shall so state, except that for **pluggable equipment type A** the building installation shall be regarded as providing protection in accordance with the rating of the wall socket outlet.		P
5.4.2.3.2.4	**Add** the following to the end of this subclause: The requirement for interconnection with **external circuit** is in addition given in EN 50491-3:2009.		P
10.2.1	Add the following to c) and d) in table 39: For additional requirements, see 10.5.1.		P

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
10.5.1	**Add** the following after the first paragraph: For RS 1 compliance is checked by measurement under the following conditions: In addition to the normal operating conditions, all controls adjustable from the outside by hand, by any object such as a tool or a coin, and those internal adjustments or presets which are not locked in a reliable manner, are adjusted so as to give maximum radiation whilst maintaining an intelligible picture for 1 h, at the end of which the measurement is made. NOTE Z1 Soldered joints and paint lockings are examples of adequate locking. The dose-rate is determined by means of a radiation monitor with an effective area of 10 cm², at any point 10 cm from the outer surface of the apparatus. Moreover, the measurement shall be made under fault conditions causing an increase of the high-voltage, provided an intelligible picture is maintained for 1 h, at the end of which the measurement is made. For RS1, the dose-rate shall not exceed 1 µSv/h taking account of the background level. NOTE Z2 These values appear in Directive 96/29/Euratom of 13 May 1996.		N/A
10.6.1	**Add** the following paragraph to the end of the subclause: EN 71-1:2011, 4.20 and the related tests methods and measurement distances apply.		N/A
10.Z1	**Add** the following new subclause after 10.6.5. **10.Z1 Non-ionizing radiation from radio frequencies in the range 0 to 300 GHz** The amount of non-ionizing radiation is regulated by European Council Recommendation 1999/519/EC of 12 July 1999 on the limitation of exposure of the general public to electromagnetic fields (0 Hz to 300 GHz). For intentional radiators, ICNIRP guidelines should be taken into account for Limiting Exposure to Time-Varying Electric, Magnetic, and Electromagnetic Fields (up to 300 GHz). For hand-held and body-mounted devices, attention is drawn to EN 50360 and EN 50566	Non ionizing radiation. Intentional radiator (GSM) Fixed equipment (not hand-held or wearable) GSM Exposure tests separately performed	P
G.7.1	**Add** the following note: NOTE Z1 The harmonized code designations corresponding to the IEC cord types are given in Annex ZD.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Bibliography	**Add** the following standards: **Add** the following notes for the standards indicated: IEC 60130-9 NOTE Harmonized as EN 60130-9. IEC 60269-2 NOTE Harmonized as HD 60269-2. IEC 60309-1 NOTE Harmonized as EN 60309-1. IEC 60364 NOTE some parts harmonized in HD 384/HD 60364 series. IEC 60601-2-4 NOTE Harmonized as EN 60601-2-4. IEC 60664-5 NOTE Harmonized as EN 60664-5. IEC 61032:1997 NOTE Harmonized as EN 61032:1998 (not modified). IEC 61508-1 NOTE Harmonized as EN 61508-1. IEC 61558-2-1 NOTE Harmonized as EN 61558-2-1. IEC 61558-2-4 NOTE Harmonized as EN 61558-2-4. IEC 61558-2-6 NOTE Harmonized as EN 61558-2-6. IEC 61643-1 NOTE Harmonized as EN 61643-1. IEC 61643-21 NOTE Harmonized as EN 61643-21. IEC 61643-311 NOTE Harmonized as EN 61643-311. IEC 61643-321 NOTE Harmonized as EN 61643-321. IEC 61643-331 NOTE Harmonized as EN 61643-331.		P
ZB	**ANNEX ZB, SPECIAL NATIONAL CONDITIONS (EN)**		P
4.1.15	**Denmark, Finland, Norway** and **Sweden** To the end of the subclause the following is added: **Class I pluggable equipment type A** intended for connection to other equipment or a network shall, if safety relies on connection to reliable earthing or if surge suppressors are connected between the network terminals and **accessible** parts, have a marking stating that the equipment shall be connected to an earthed **mains** socket-outlet. The marking text in the applicable countries shall be as follows: In **Denmark**: “Apparatets stikprop skal tilsluttes en stikkontakt med jord som giver forbindelse til stikproppens jord.” In **Finland**: "Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan" In **Norway**: “Apparatet må tilkoples jordet stikkontakt” In **Sweden**: “Apparaten skall anslutas till jordat uttag”		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
4.7.3	**United Kingdom** To the end of the subclause the following is added: The torque test is performed using a socket-outlet complying with BS 1363, and the plug part shall be assessed to the relevant clauses of BS 1363. Also see Annex G.4.2 of this annex		N/A
5.2.2.2	**Denmark** After the 2nd paragraph add the following: A warning (marking **safeguard**) for high **touch current** is required if the **touch current** exceeds the limits of 3,5 mA a.c. or 10 mA d.c.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.4.11.1 and Annex G	**Finland and Sweden** To the end of the subclause the following is added: For separation of the telecommunication network from earth the following is applicable: If this insulation is solid, including insulation forming part of a component, it shall at least consist of either • two layers of thin sheet material, each of which shall pass the electric strength test below, or • one layer having a distance through insulation of at least 0,4 mm, which shall pass the electric strength test below. If this insulation forms part of a semiconductor component (e.g. an optocoupler), there is no distance through insulation requirement for the insulation consisting of an insulating compound completely filling the casing, so that clearances and creepage distances do not exist, if the component passes the electric strength test in accordance with the compliance clause below and in addition • passes the tests and inspection criteria of 5.4.8 with an electric strength test of 1,5 kV multiplied by 1,6 (the electric strength test of 5.4.9 shall be performed using 1,5 kV), and • is subject to routine testing for electric strength during manufacturing, using a test voltage of 1,5kV. It is permitted to bridge this insulation with a capacitor complying with EN 60384-14:2005, subclass Y2. A capacitor classified Y3 according to EN 60384-14:2005, may bridge this insulation under the following conditions: • the insulation requirements are satisfied by having a capacitor classified Y3 as defined by EN 60384-14, which in addition to the Y3 testing, is tested with an impulse test of 2,5 kV defined in 5.4.11; • the additional testing shall be performed on all the test specimens as described in EN 60384-14; the impulse test of 2,5 kV is to be performed before the endurance test in EN 60384-14, in the sequence of tests as described in EN 60384-14.	AC/DC PWS is separately approved. Solid-State Relay is separately approved.	N/A
5.5.2.1	**Norway** After the 3rd paragraph the following is added: Due to the IT power system used, capacitors are required to be rated for the applicable line-to-line voltage (230 V).		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.5.6	**Finland, Norway** and **Sweden** To the end of the subclause the following is added: Resistors used as **basic safeguard** or bridging **basic insulation** in **class I pluggable equipment type A** shall comply with G.10.1 and the test of G.10.2.		N/A
5.6.1	**Denmark** **Add** to the end of the subclause Due to many existing installations where the socket-outlets can be protected with fuses with higher rating than the rating of the socket-outlets the protection for pluggable equipment type A shall be an integral part of the equipment. Justification: In Denmark an existing 13 A socket outlet can be protected by a 20 A fuse.		N/A
5.6.4.2.1	**Ireland and United Kingdom** After the indent for **pluggable equipment type A**, the following is added: – the **protective current rating** is taken to be 13 A, this being the largest rating of fuse used in the **mains** plug.		N/A
5.6.5.1	To the second paragraph the following is added: The range of conductor sizes of flexible cords to be accepted by terminals for equipment with a rated current over 10 A and up to and including 13 A is: 1,25 mm2 to 1,5 mm2 in cross-sectional area.		N/A
5.7.5	**Denmark** To the end of the subclause the following is added: The installation instruction shall be affixed to the equipment if **the protective conductor current** exceeds the limits of 3,5 mA a.c. or 10 mA d.c.	Not exceeds	N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.1	**Norway and Sweden** To the end of the subclause the following is added: The screen of the television distribution system is normally not earthed at the entrance of the building and there is normally no equipotential bonding system within the building. Therefore the protective earthing of the building installation needs to be isolated from the screen of a cable distribution system. It is however accepted to provide the insulation external to the equipment by an adapter or an interconnection cable with galvanic isolator, which may be provided by a retailer, for example. The user manual shall then have the following or similar information in Norwegian and Swedish language respectively, depending on in what country the equipment is intended to be used in: “Apparatus connected to the protective earthing of the building installation through the mains connection or through other apparatus with a connection to protective earthing – and to a television distribution system using coaxial cable, may in some circumstances create a fire hazard. Connection to a television distribution system therefore has to be provided through a device providing electrical isolation below a certain frequency range (galvanic isolator, see EN 60728-11)” NOTE In Norway, due to regulation for CATV-installations, and in Sweden, a galvanic isolator shall provide electrical insulation below 5 MHz. The insulation shall withstand a dielectric strength of 1,5 kV r.m.s., 50 Hz or 60 Hz, for 1 min. Translation to Norwegian (the Swedish text will also be accepted in Norway): “Apparater som er koplet til beskyttelsesjord via nettplugg og/eller via annet jordtilkoplet utstyr – og er tilkoplet et koaksialbasert kabel-TV nett, kan forårsake brannfare. For å unngå dette skal det ved tilkopling av apparater til kabel-TV nett installeres en galvanisk isolator mellom apparatet og kabel-TV nettet.” Translation to Swedish: ”Apparater som är kopplad till skyddsjord via jordat vägguttag och/eller via annan utrustning och samtidigt är kopplad till kabel-TV nät kan i vissa fall medföra risk för brand. För att undvika detta skall vid anslutning av apparaten till kabel-TV nät galvanisk isolator finnas mellan apparaten och kabel-TV nätet.”.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
5.7.6.2	**Denmark** To the end of the subclause the following is added: The warning (marking safeguard) for high touch current is required if the touch current or the protective current exceed the limits of 3,5 mA .		N/A
B.3.1 and B.4	**Ireland and United Kingdom** The following is applicable: To protect against excessive currents and short-circuits in the primary circuit of **direct plug-in equipment**, tests according to Annexes B.3.1 and B.4 shall be conducted using an external miniature circuit breaker complying with EN 60898-1, Type B, rated 32A. If the equipment does not pass these tests, suitable protective devices shall be included as an integral part of the **direct plug-in equipment**, until the requirements of Annexes B.3.1 and B.4 are met		N/A
G.4.2	**Denmark** To the end of the subclause the following is added: Supply cords of single phase appliances having a rated current not exceeding 13 A shall be provided with a plug according to DS 60884-2-D1:2011. CLASS I EQUIPMENT provided with socket-outlets with earth contacts or which are intended to be used in locations where protection against indirect contact is required according to the wiring rules shall be provided with a plug in accordance with standard sheet DK 2-1a or DK 2-5a. If a single-phase equipment having a RATED CURRENT exceeding 13 A or if a poly-phase equipment is provided with a supply cord with a plug, this plug shall be in accordance with the standard sheets DK 6-1a in DS 60884-2-D1 or EN 60309-2. Mains socket outlets intended for providing power to Class II apparatus with a rated current of 2,5 A shall be in accordance DS 60884-2-D1:2011 standard sheet DKA 1-4a. Other current rating socket outlets shall be in compliance with Standard Sheet DKA 1-3a or DKA 1-1c. Mains socket-outlets with earth shall be in compliance with DS 60884-2-D1:2011 Standard Sheet DK 1-3a, DK 1-1c, DK1-1d, DK 1-5a or DK 1-7a Justification: Heavy Current Regulations, Section 6c		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict
G.4.2	**United Kingdom** To the end of the subclause the following is added: The plug part of direct plug-in equipment shall be assessed to BS 1363: Part 1, 12.1, 12.2, 12.3, 12.9, 12.11, 12.12, 12.13, 12.16, and 12.17, except that the test of 12.17 is performed at not less than 125 °C. Where the metal earth pin is replaced by an Insulated Shutter Opening Device (ISOD), the requirements of clauses 22.2 and 23 also apply.		N/A
G.7.1	**United Kingdom** To the first paragraph the following is added: Equipment which is fitted with a flexible cable or cord and is designed to be connected to a mains socket conforming to BS 1363 by means of that flexible cable or cord shall be fitted with a 'standard plug' in accordance with the Plugs and Sockets etc (Safety) Regulations 1994, Statutory Instrument 1994 No. 1768, unless exempted by those regulations. NOTE "Standard plug" is defined in SI 1768:1994 and essentially means an approved plug conforming to BS 1363 or an approved conversion plug.		N/A
G.7.1	**Ireland** To the first paragraph the following is added: Apparatus which is fitted with a flexible cable or cord shall be provided with a plug in accordance with Statutory Instrument 525: 1997, "13 A Plugs and Conversion Adapters for Domestic Use Regulations: 1997. S.I. 525 provides for the recognition of a standard of another Member State which is equivalent to the relevant Irish Standard		N/A
G.7.2	**Ireland and United Kingdom** To the first paragraph the following is added: A power supply cord with a conductor of 1,25 mm2 is allowed for equipment which is rated over 10 A and up to and including 13 A.		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

ZC	**ANNEX ZC, NATIONAL DEVIATIONS (EN)**		N/A
10.5.2	**Germany** The following requirement applies: For the operation of any cathode ray tube intended for the display of visual images operating at an acceleration voltage exceeding 40 kV, authorization is required, or application of type approval (Bauartzulassung) and marking. Justification: German ministerial decree against ionizing radiation (Röntgenverordnung), in force since 2002-07-01, implementing the European Directive 96/29/EURATOM. NOTE Contact address: Physikalisch-Technische Bundesanstalt, Bundesallee 100, D-38116 Braunschweig, Tel.: Int +49-531-592-6320, Internet: http://www.ptb.de		N/A

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Attachment II:

Pictures_1 _EUT

Pictures_2_EUT

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

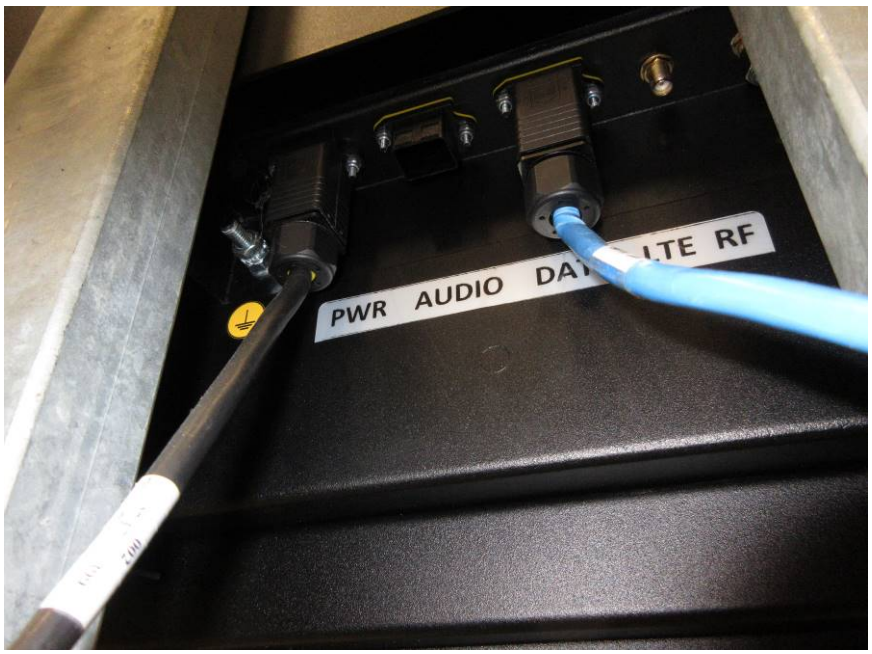
Pictures_3_EUT

Pictures_4_EUT

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

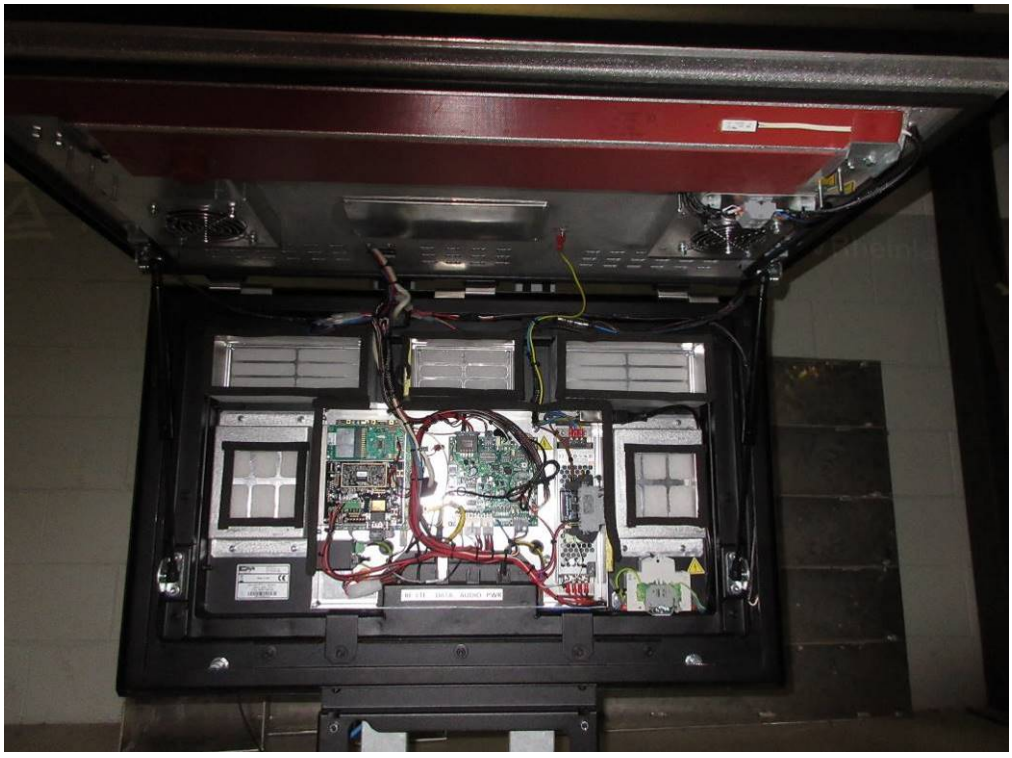
Pictures_5_EUT

Pictures_6_EUT



IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Pictures_7_EUT



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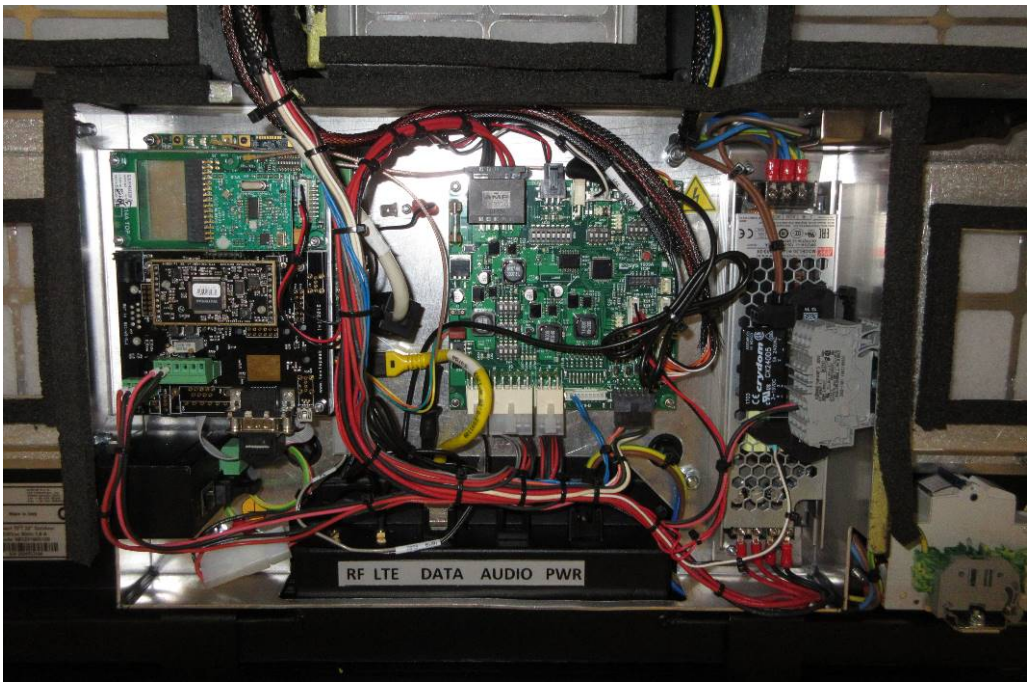


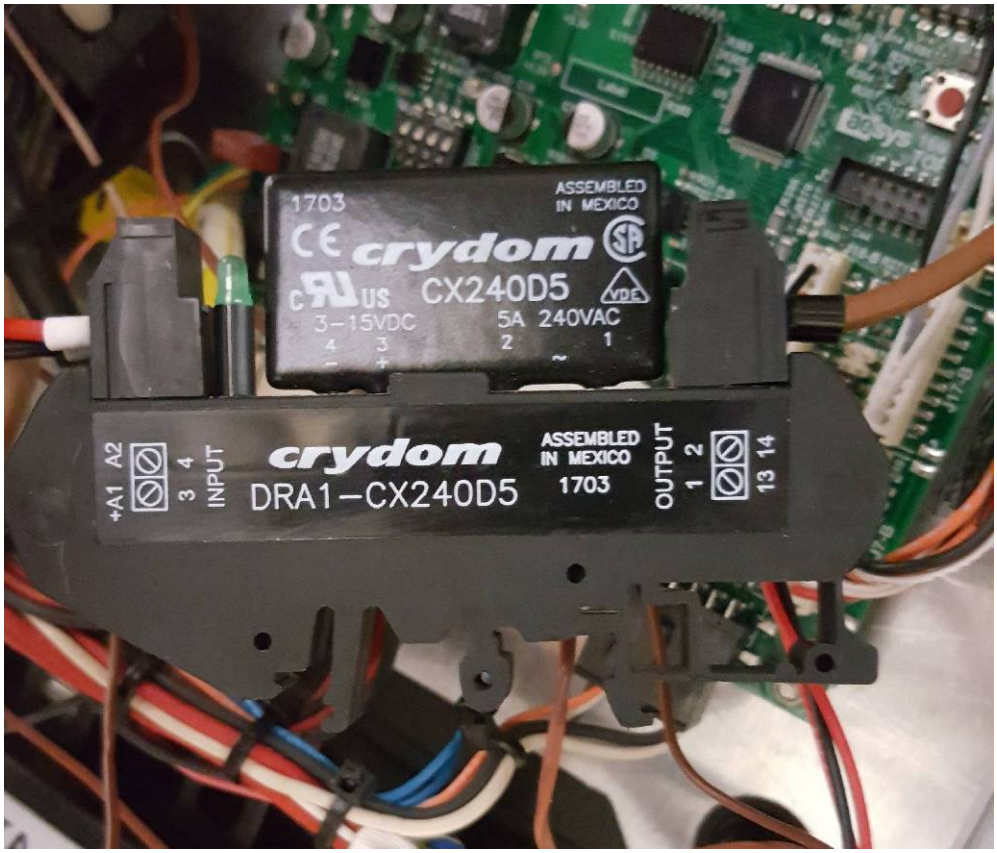
IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Pictures_9_EUT

Pictures_10_EUT

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Pictures_11_EUT



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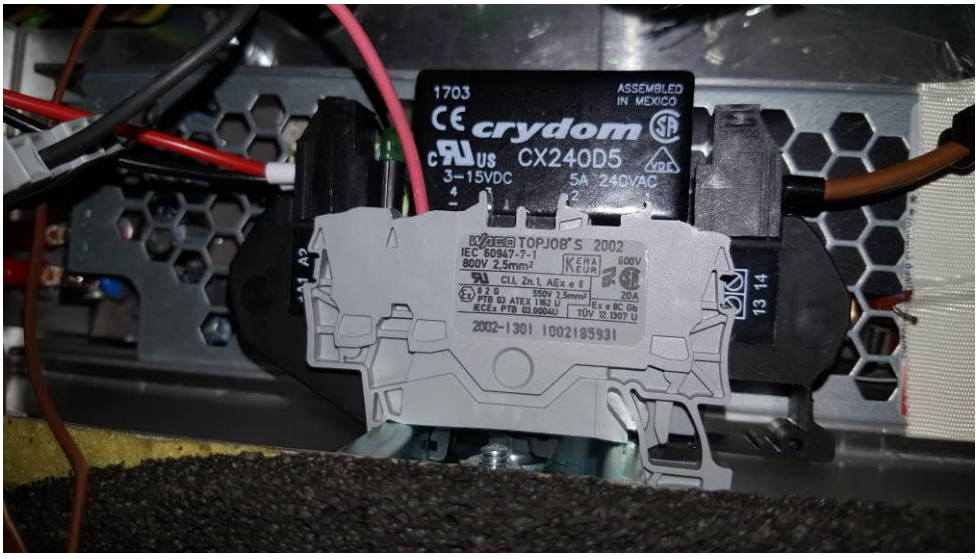
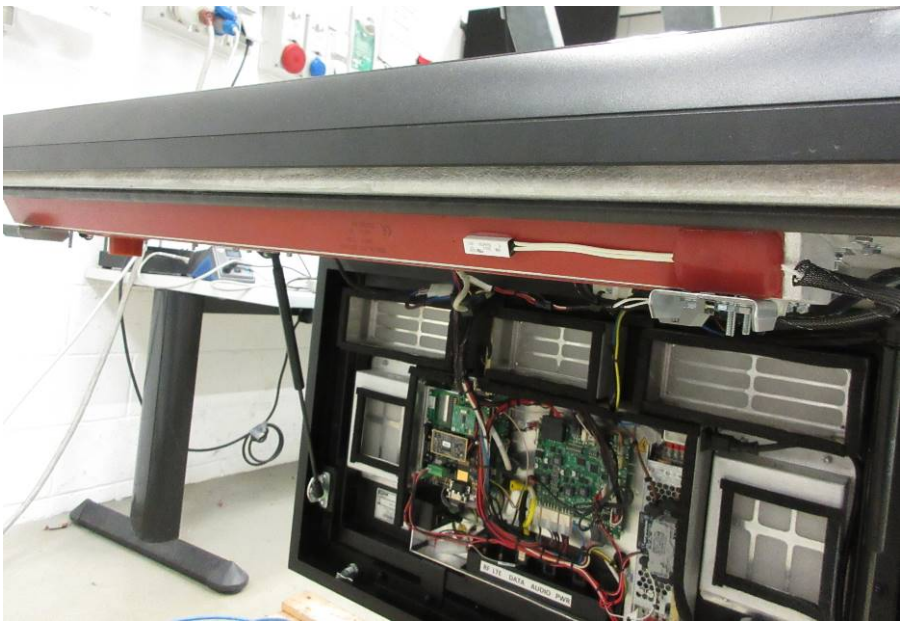


IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Pictures_13_EUT

Pictures_14_EUT



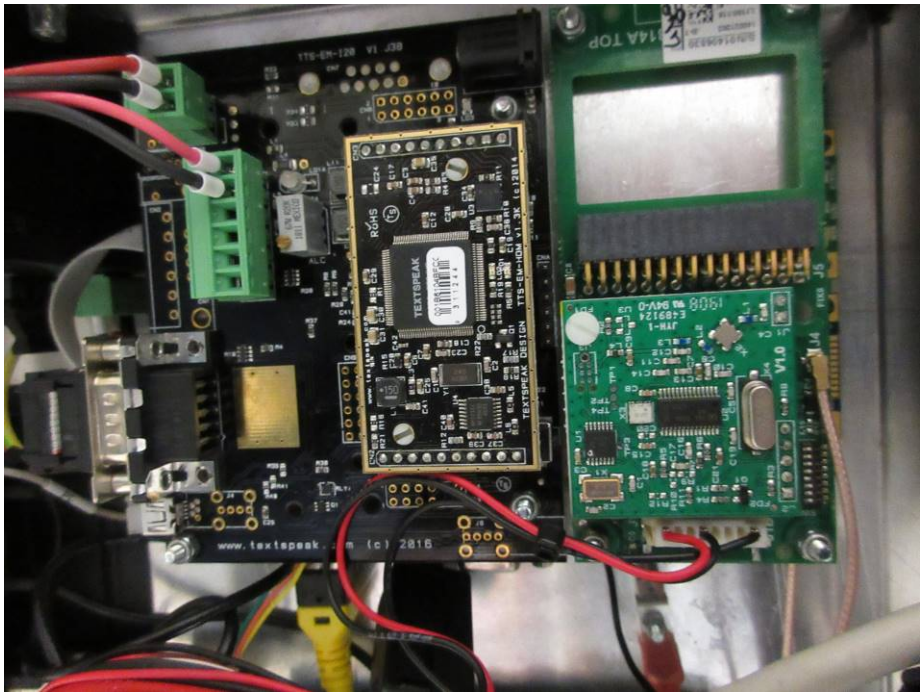
IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Pictures_15_EUT

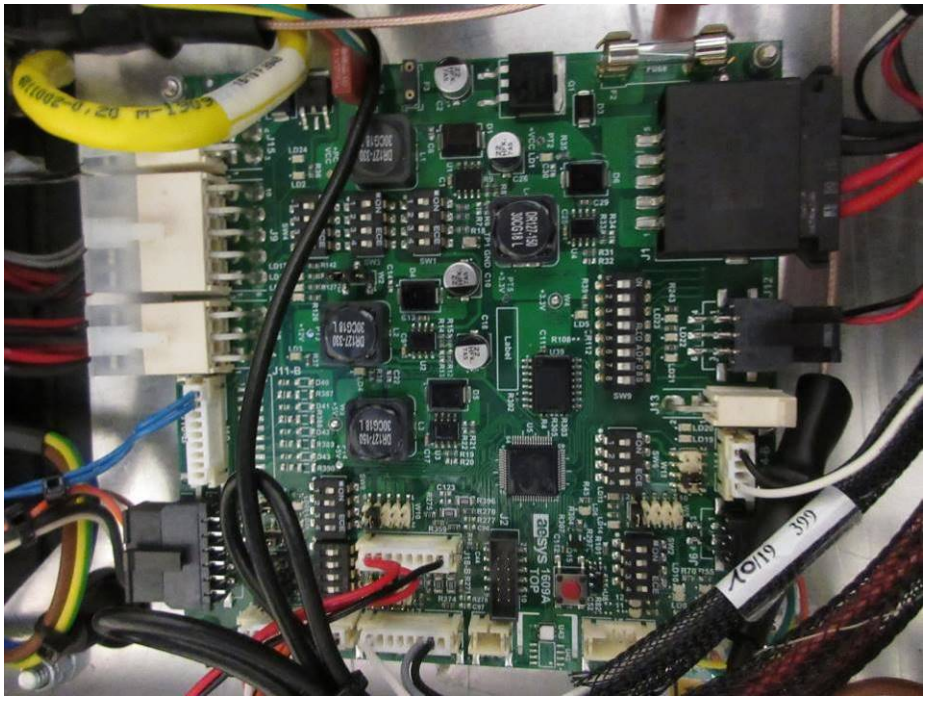
Pictures_16_EUT

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Pictures_17_EUT



Pictures_18_EUT

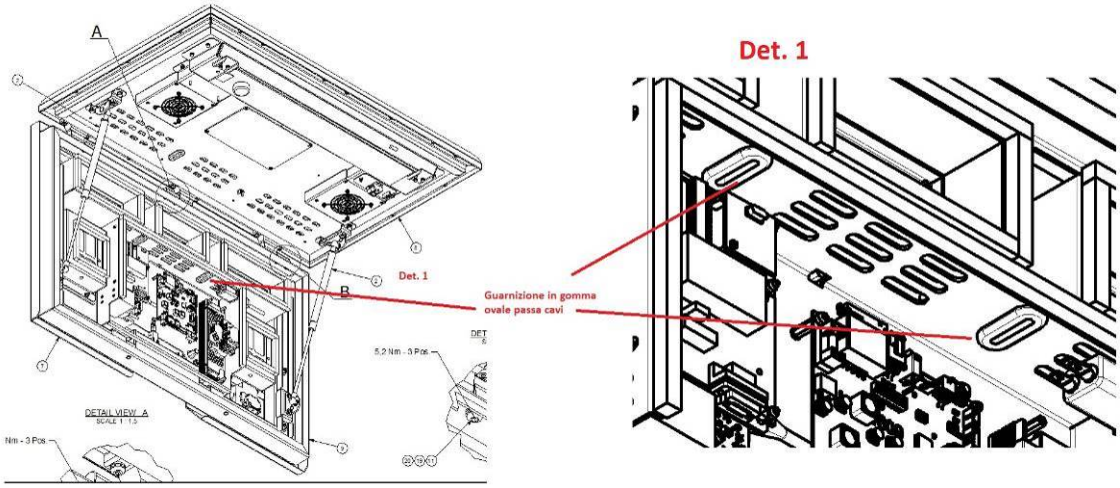


IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Pictures_19_EUT

Pictures_20_EUT

IEC 62368-1			
Clause	Requirement + Test	Result - Remark	Verdict

Pictures_21_EUT

Pictures_22_
Blank